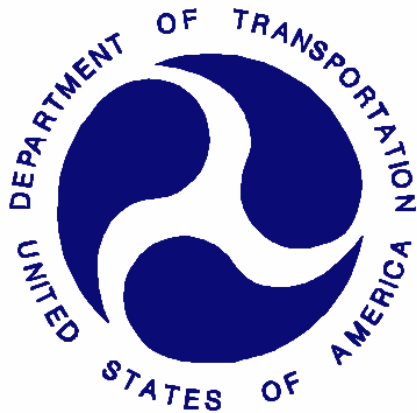


REPORT NUMBER: SideNCAPPole-KAR-22-003
NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT POLE TEST

VOLKSWAGEN DE MEXICO
2022 VOLKSWAGEN TAOS 5 DOOR MPV

NHTSA No: M20225804

PREPARED BY:
APPLUS IDIADA KARCO ENGINEERING, LLC.
9270 HOLLY ROAD
ADELANTO, CA 92301



MAY 24, 2022

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NRM-110
1200 NEW JERSEY AVE, SE,
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Division Chief, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

Date: _____

COTR, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

Date: _____

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		15. Supplementary Notes																												
16. Abstract A 32.2 km/h 75° rigid pole side NCAP impact test was conducted on the subject 2022 Volkswagen Taos 5-door MPV in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. The test was conducted at the Applus IDIADA KARCO Engineering, LLC. facility in Adelanto, California on May 10, 2022. The impact velocity was 32.32 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 18.9°C. The target vehicle's maximum post-test static crush was 298 mm located at level 1. The test vehicle's occupant performance data is as follows: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2" style="text-align: left;">Measurement Description</th> <th colspan="3" style="text-align: center;">Driver ATD (SID-IIs)</th> </tr> <tr> <th style="text-align: center;">Units</th> <th style="text-align: center;">Threshold</th> <th style="text-align: center;">Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td></td> <td style="text-align: center;">1000</td> <td style="text-align: center;">337.6</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td style="text-align: center;">g</td> <td style="text-align: center;">82</td> <td style="text-align: center;">46</td> </tr> <tr> <td>Total Pelvic Force (Sum of Acetabular and Iliac Forces)</td> <td style="text-align: center;">N</td> <td style="text-align: center;">5525</td> <td style="text-align: center;">4175</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">38</td> <td style="text-align: center;">27</td> </tr> <tr> <td>Maximum Abdominal Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">45</td> <td style="text-align: center;">36</td> </tr> </tbody> </table> The struck side doors of the vehicle were jammed shut and did not separate from the body at the hinges or latches. The remaining doors did not open during the side impact event.				Measurement Description	Driver ATD (SID-IIs)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)		1000	337.6	Resultant Lower Spine Acceleration	g	82	46	Total Pelvic Force (Sum of Acetabular and Iliac Forces)	N	5525	4175	Maximum Thoracic Rib Deflection	mm	38	27	Maximum Abdominal Rib Deflection	mm	45	36
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SECTION 1

TEST PURPOSE AND SUMMARY OF TEST

PURPOSE

This side impact test is part of the 2022 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number 693JJ920D000015. The purpose of this test is to generate comparative side impact performance in a 2022 Volkswagen Taos 5 Door MPV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure date March 2020.

SUMMARY

A rigid pole side impact test was conducted on a 2022 Volkswagen Taos 5 Door MPV. The subject vehicle was towed into the rigid pole at an angle of 74.6° and a velocity of 32.32 km/h. The test was conducted by Applus IDIADA KARCO Engineering, LLC. in Adelanto, California on May 10, 2022. Pre- and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated March 2020. Camera locations and other pertinent camera information are included in this report.

The Part 572V (SID-IIs) was instrumented accordingly:

- Primary and Redundant Head CG tri-axial accelerometers
- Thorax upper, middle and lower rib displacement potentiometers
- Abdomen upper and lower rib displacement potentiometers
- Lower spine (12) tri-axial accelerometers
- Iliac load cell
- Acetabulum load cell

Appendix B contains the vehicle and dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report. Appendix D contains the test equipment and instrumentation calibration data.

SECTION 1 ...(CONTINUED)
TEST PURPOSE AND SUMMARY OF TEST

Injury readings for the SID-IIs dummy were recorded as follows:

Measurement Description	Units	Driver ATD (SID-IIs)	
		IARV	Result
Head Injury Criteria (HIC ₃₆)		1000	337.6
Lower Spine (T12) Resultant Acceleration	g	82	46
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4175
Maximum Thoracic Rib Deflection	mm	38*	27
Maximum Abdominal Rib Deflection	mm	45*	36

**Proposed IARV*

Supplemental restraint information is given below:

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No	No	
Knee Airbag	No		No	
Side Airbag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Airbag 2 (Torso/Pelvis)	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes	Yes	No	

GENERAL COMMENTS

The struck side doors of the vehicle were jammed shut. There was no separation at the hinges or latches. The remaining doors remained closed and latched. There were no ATD values that exceeded limits.

SECTION 2

OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022

CONVERSION FACTORS

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	miles/hr	km/hr	1.609344
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.574
Pressure	Tire Pressures	lb/in ²	kPa	6.895
Temperature	General Use	°F	°C	$=(T_f - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf-ft	N•m	1.355

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
 Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	M20225804
Model Year	2022
Make	Volkswagen
Model	Taos
Body Style	5-Door MPV
VIN	3VVRX7B2XNM060383
Body Color	Grey Metallic
Odometer Reading (km / mi)	137 / 85
Engine Displacement (L)	1.5
Type / No. of Cylinders	Inline 4
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	8
Overdrive	Yes
Final Drive	FWD
Roof Rack	Yes
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Yes
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	No
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	No
Driver Load Limiter	Yes
Rear Pass. Load Limiter	No
Other Safety Restraint	Yes

Does Owner's Manual provide instructions to turn off automatic door locks?

N/A

DATA FROM CERTIFICATION LABEL

Manufactured By	Volkswagen De Mexico
Date of Manufacture	Mar-22
Vehicle Type	MPV

GVWR (kg)	1970
GAWR Front (kg)	1040
GAWR Rear (kg)	980

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity	2	3		5	
Capacity Weight (VCW) (kg)				425.0	A
DSC x 68.04 (kg)				340.2	B
Cargo Weight (RCLW) (kg)				84.8	A-B

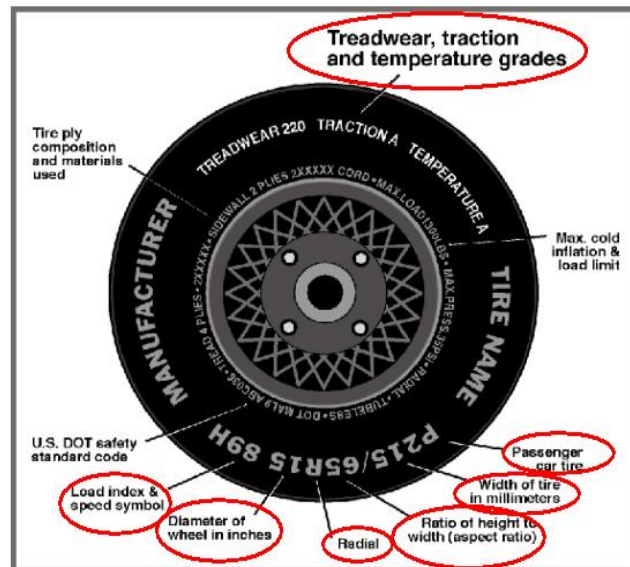
VEHICLE SEAT TYPE

Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						w/ Lever	w/ Knob
Front Seat	Yes					Yes	
Rear or Second Row Seat			Yes		Yes		
Third Row Seat							

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
 Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	250	250
Recommended Tire Size	215/50R18	215/50R18
Tire Size on Vehicle	215/50R18	215/50R18
Tire Manufacturer	Good Year	Good Year
Tire Model	Assurance	Assurance
Treadware	540	540
Traction Grade	A	A
Temperature Grade	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Polyamide	1 Polyester, 2 Steel, 1 Polyamide
Load Index/Speed Symbol	94H	94H
Tire Material	Polyester, Steel, Polyamide	Polyester, Steel, Polyamide
DOT Safety Code Left	PLVK JPIR 0322	PLVK JPIR 0322
DOT Safety Code Right	PLVK JPIR 0322	PLVK JPIR 0322

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
 Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	250	250	250	250
Tire Placard	kPa	250	250	250	250
Owner's Manual	kPa	250	250	250	250
As Tested	kPa	250	250	250	250

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	438.5	298.0		479.0	341.5		480.5	340.0	
Right	kg	433.0	291.5		434.0	332.5		441.5	333.5	
Ratio	%	59.7%	40.3%	100.0%	57.5%	42.5%	100.0%	57.8%	42.2%	100.0%
Total	kg	871.5	589.5	1461.0	913.0	674.0	1587.0	922.0	673.5	1595.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1461.0	A
Actual Weight of 1 SID II-s ATD Used	kg	49.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	84.8	C
Calculated Vehicle Target Wt (TVTW)	kg	1594.8	A+B+C

Does the measured As Tested Vehicle Weight lie within the required weight range (i.e.

Calculated Test Vehicle Target Weight -4.5 kg to -9.0 kg)? ☒ Yes ☐ No

TEST VEHICLE ATTITUDE AND CG

Measurement Description	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	°	0.5	-0.1	-0.2	Yes
Front Passenger Sill Angle (front-to-rear)*	°	-0.2	-0.1	0.0	Yes
Front Bumper-Line Angle (left-to-right)**	°	-0.9	-0.3	-0.2	Yes
Rear Bumper-Line Angle (left-to-right)**	°	0.0	-0.2	-0.3	Yes
Vehicle CG (Aft of Front Axle)	mm	1085	1142	1135	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	6	26	22	

*ND=Nose Down (-), NU=Nose Up (+) **LD=Left Down (-), LU=Left Up (+)

***The "As Tested" vehicle attitude angle measurements must be within "As Delivered" and the "Fully Loaded" vehicle attitude measurements at each location. Indicate "Yes" or "No" for "Meets Requirement"

DATA SHEET NO. 1 ... (CONTINUED)**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Rear Trim	3.0
Spare Tire	12.0
Ballast / Equipment Added	60.8

TEST SURFACE MARKINGS

	Distance from 75° Impact Location Line (mm)
Fore 25 mm target	0
Aft 25 mm target	0

DATA SHEET NO. 2**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA**

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
 Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022

SEAT POSITIONING

The driver's seat, front center seat (if applicable), and front passenger's seat should be set to the forward most, mid-height, mid-angle position. The struck side rear passenger's seat, rear center seat, and non-struck side rear passenger's seat should be set to the rear most, lowest, mid-angle position.

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	18.3	10.4	14.4
Front Passenger Seat	15.1	12.5	13.8
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid Fore/Aft	Forwardmost
Driver Seat	14.4	229.5	Max	256	257	261
			Mid	227	228	229.5
			Min	198	199	198
Front Passenger Seat	13.8	193	Max			
			Mid	196	197	193
			Min			
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed

DATA SHEET NO. 2 ... (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
 Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022

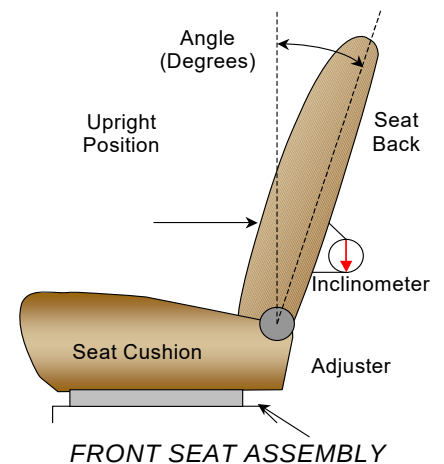
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position From Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	254		0	
Front Passenger Seat	254	38	0	0
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

*Detent zero (0) is the forward most detent

SEAT BACK ADJUSTMENT

The driver's seat back is positioned such that the dummy's head is level. The front passenger's seat back is positioned in a similar manner to the driver's seat. The struck side rear passenger seat back is positioned in accordance with the information provided by the manufacturer in Form 1 for the 5th percentile female dummy in a Side NCAP MDB Test. The rear center and non-struck side rear passenger's seat back is set to match the struck side rear seat back. Seat back angle is measured using a flat bar along the seat back.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degree	Detent*
Driver Seat w/Seated Dummy	63.9		13.3	
Front Passenger Seat	63.5	31	N/A	N/A
Front Center Seat				
Struck Side Rear Seat w/Seated Dummy	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

*Detent zero (0) is the forward most detent

DATA SHEET NO. 2 ... (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804

Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. The positions are marked H, M2, M1, L from top to bottom.

	Total No. of Positions	Placed in Position
Driver Seat	4	H

HEAD RESTRAINT ADJUSTMENT

The driver's head restraint is adjusted to the lowest and most full forward in-use position.

	Total No. of Positions	Placed in Position
Driver Seat	4	H

DATA SHEET NO. 2 ... (CONTINUED)

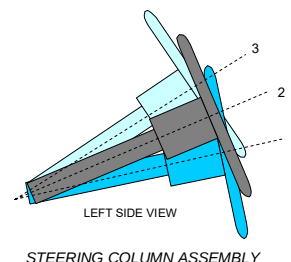
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022

STEERING COLUMN ADJUSTMENT

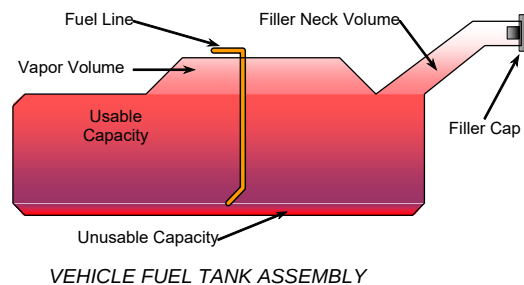
Steering wheel and column adjustments are made so that the steering wheel hub is at the center of the geometric locus it describes when it moves through its full range of motion.

	Degrees	Fore-Aft Position (mm)
Lowermost - Position 1	24.0	141
Geometric Center - Position 2	26.6	111.5
Uppermost - Position 3	29.2	82
Telescoping Steering Wheel Travel		59
Test Position	26.6	111.5



FUEL PUMP

The vehicle is equipped with an electric fuel pump. The pump will work at "ignition on" until pressure in the system has reached working pressure in the system; then it will stop pumping fuel until the engine has been started.



FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	50.72
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)*	
Usable Capacity of "Optional Tank" (see Owner's Manual)*	
93% of Usable Capacity	47.17
Actual amount of Solvent Used in Test	47.17
1/3 of Usable Capacity	16.91

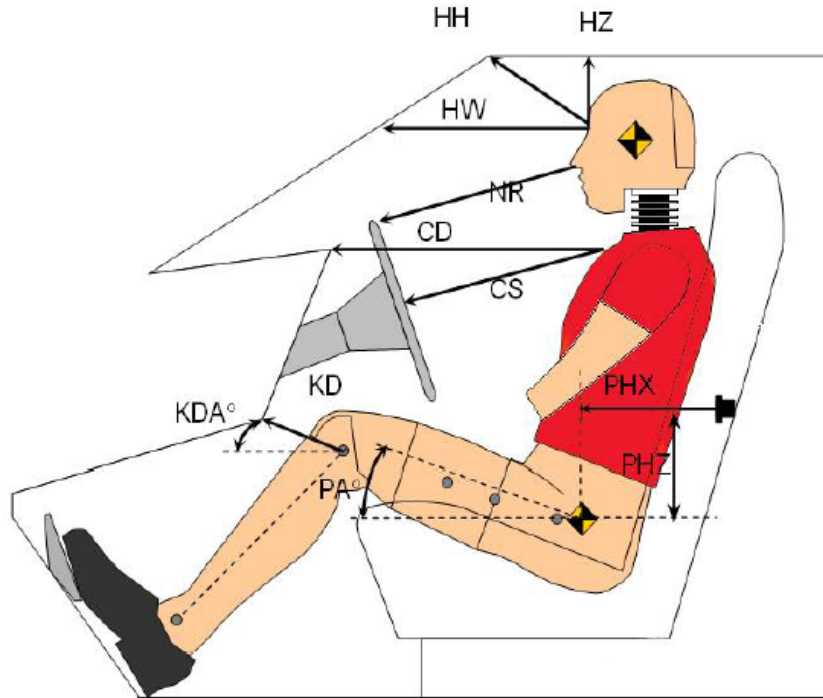
Is the Actual Amount of Solvent Used in the test equal to 93% $\pm$ 1% of the Usable Capacity stated in the Form No. 1? ☒ Yes ☐ No

*The vehicle was delivered without an owner's manual

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
 Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022

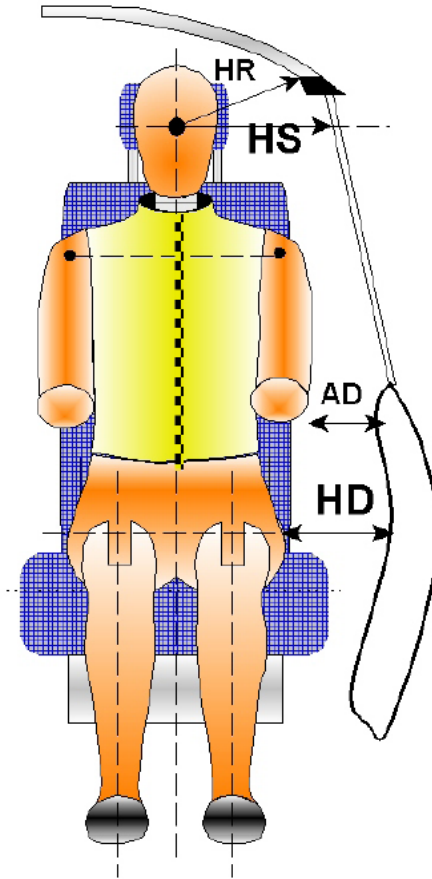


Driver Code	Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	325	
HW	Head to Windshield	654	
HZ	Head to Roof	245	
NR	Nose to Rim	261	
CD	Chest to Dash	435	
CS	Chest to Steering Wheel	205	
KD(L)/KDA(L)°	Left Knee to Dash	125	10.7
KD(R)/KDA(R)°	Right Knee to Dash	115	21.3
PAX°	Pelvic Tilt Angle (x-axis)		21.3
PAY°	Pelvic Tilt Angle (y-axis)		0.1
PHX	Hip Point to Striker (x-axis)	675	
PHZ	Hip Point to Striker (z-axis)	163	

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022

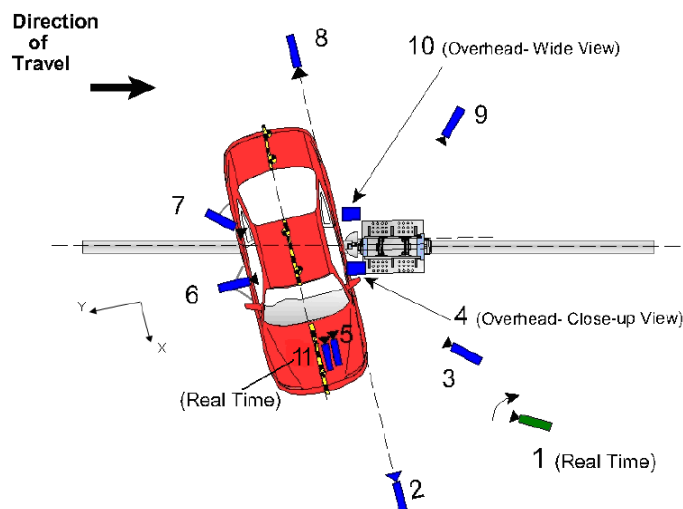


Code	Measurement Description	Units	Driver
HR	Head to Side Header	mm	229
CHR	Center of Head to Side Header	mm	274
HS	Head to Side Window	mm	355
AD	Arm to Door	mm	64
HD	Hip Point to Door	mm	155

DATA SHEET NO. 5

CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
 Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022



Reference from Point of Impact for X and Y; from Ground for Z):
 +X = Forward of Vehicle, +Y = Right of Vehicle, +Z = Down

Camera No.	View	Coordinates (m)			Lens (mm)	Film Speed (fps)
		X*	Y*	Z*		
1	Real Time Pan View of Impact	8.89	46.57	-3.04		30
2	Front Ground Level - Impact View	8.34	-0.05	-0.93	35	1000
3	Impact Side 45° - Forward Pole View	4.10	-2.15	-1.15	25	1000
4	Overhead Close-Up View of Impact	0.00	0.00	-5.79	35	1000
5	On-Board - Dummy Front View	1.34	-0.53	-1.57	8	1000
6	On-Board - Dummy Side View	0.06	0.73	-1.32	6	1000
7	On-Board - Dummy Rear Oblique View	-0.97	0.70	-1.36	6	1000
8	Rear Ground Level - Impact View	-1.30	1.68	-1.26	35	1000
9	Impact Side 45° - Rearward Pole View	-8.02	0.04	-1.01	25	1000
10	Overhead Wide View of Impact	-0.06	0.22	-5.79	15	1000
11	Real Time Dummy Front View	1.34	-0.52	-1.56		30

*All measurements accurate to ± 6 mm

NOTE: Vehicle is at a 75 angle to the rigid pole.

If applicable, explain why camera(s) did not operate as intended: N/A

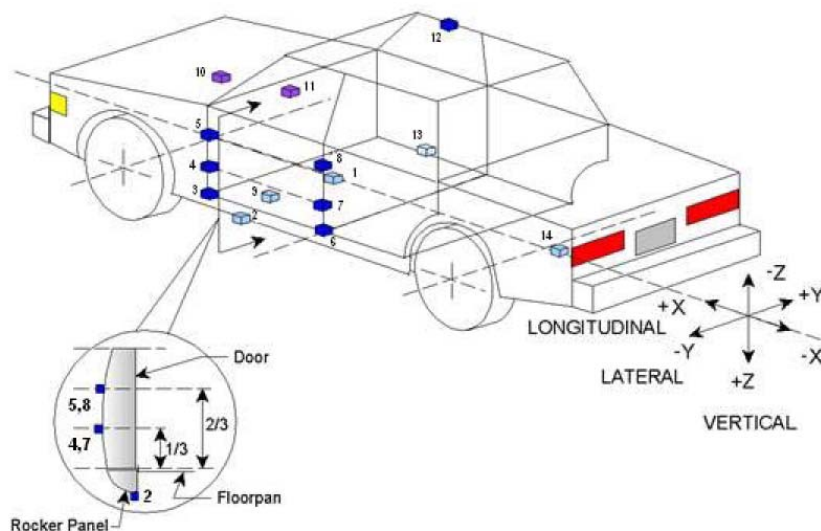
INSTRUMENTATION

Driver Dummy Channels	19
Vehicle Structure Accelerometers	18
Pole Load Cells	8
Total	45

DATA SHEET NO. 6

TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
 Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022

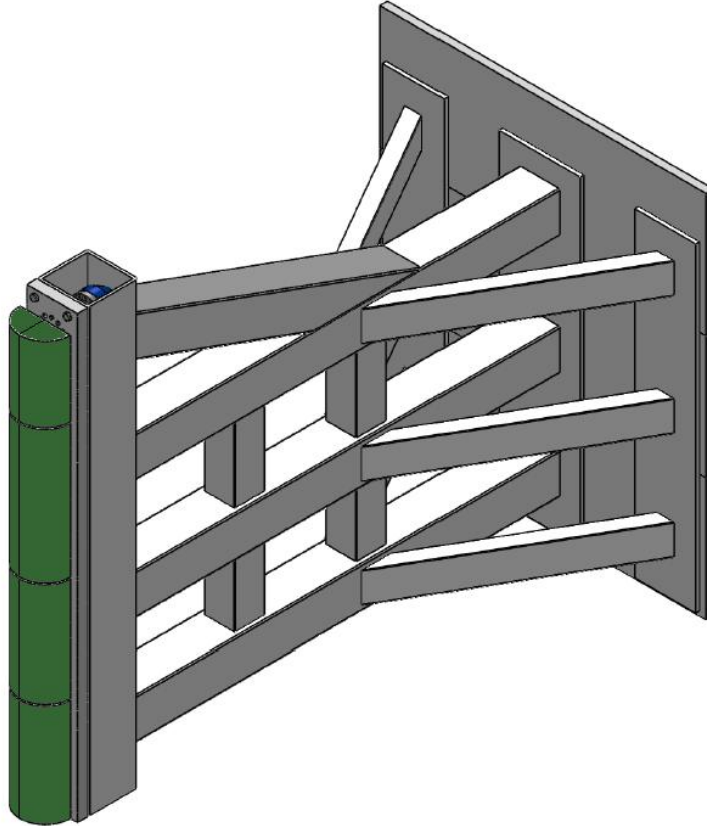


Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	1805	0	347
2	Left Floor Sill	2492	-797	231
3	A-Pillar Sill	3091	-812	415
4	A-Pillar Low	3091	-812	686
5	A-Pillar Mid	3091	-812	785
6	B-Pillar Sill	2010	-732	391
7	B-Pillar Low	2010	-732	660
8	B-Pillar Mid	2010	-732	1022
9	Driver Seat Track	2097	-68	347
10	Engine Top	3666	310	792
11	Firewall	3451	262	884
12	Right Roof	2161	485	1544
13	Right Floor Sill	2030	720	380
14	Rear Floorpan	980	0	373

Reference: X – Rear surface of vehicle (+ forward)
 Y – Vehicle centerline (+ to right)
 Z – Ground plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022



ID	Units	Height From Ground
1	mm	87
2	mm	468
3	mm	648
4	mm	978
5	mm	1168
6	mm	1651
7	mm	1816
8	mm	2057

DATA SHEET NO. 8**POST-TEST OBSERVATIONS**

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
 Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver SID-IIs Dummy
Face	Curtain Airbag
Top of Head	None
Left Side of Head	Curtain Airbag
Back of Head	Headrest, Seaback
Left Shoulder	Door Panel
Upper Torso	Door Panel, Torso/Pelvis Airbag
Lower Torso	Door Panel, Torso/Pelvis Airbag
Left Hip	Door Panel
Left Knee	Door Panel

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/Other Door
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	No
Latch or Hinge System Pulled Out of Their Anchorages	No	No	No	No	No
Disengaged from Latched Position	No	No	No	No	No
Latch Separated from Striker	No	No	No	No	No
Jammed Shut	Yes	Yes	No	No	No
If Door Opened at Striker, Record Width of Opening at Striker (mm)	N/A	N/A	N/A	N/A	N/A

POST-TEST SEAT PERFORMANCE

Description	Struck Side		Non-Struck Side	
	Front	Rear	Front	Rear
Seat Movement Along Seat Track	No		No	
Seat Disengagement from Floor Pan	No	No	No	No
Seat Back Movement from Initial Position	No	No	No	No
Seat Back Collapse	No	No	No	No

DATA SHEET NO. 8 ... (CONTINUED)**POST-TEST OBSERVATIONS**

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
 Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Good
Sill Separation	None
Windshield Damage	Broken
Side Window Damage	Broken
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No	No	
Knee Airbag	No		No	
Side Airbag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Airbag 2 (Torso/Pelvis)	Yes	Yes	No	No
Seat Belt Pretensioner	Yes	Yes	No	No
Seat Belt Load Limiter	Yes	Yes	No	No

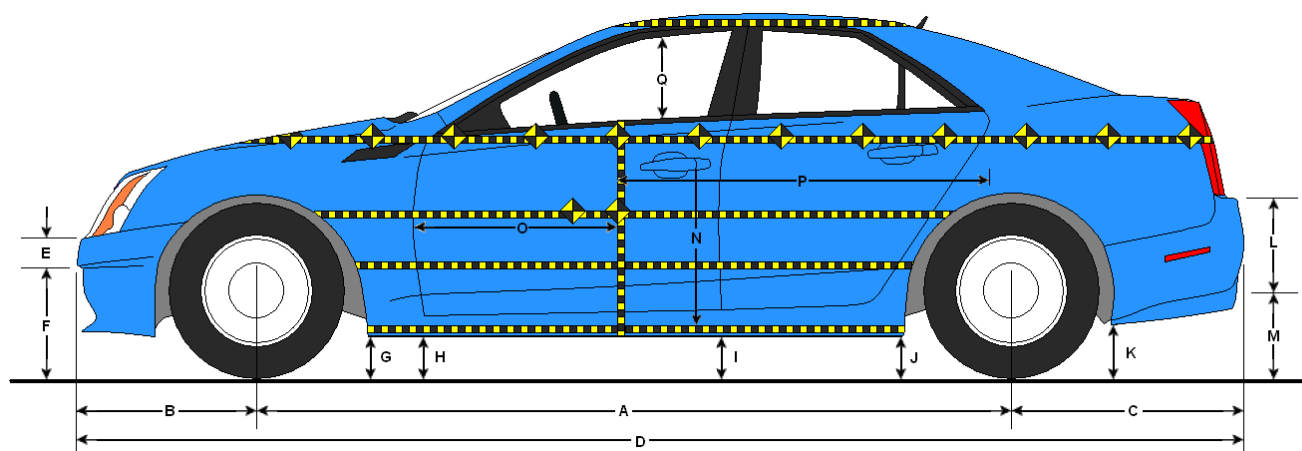
IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		1086
Actual Impact Point (Aft of Front Axle)	mm		1088
Horizontal Offset (+ forward / - rearward)	mm	± 38 of Intended Impact Point	2
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	°	75 ± 3	74.6
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.32
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.28

DATA SHEET NO. 9

TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
 Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022



LEFT SIDE VIEW

All measurements in mm with tolerance of ± 3 mm

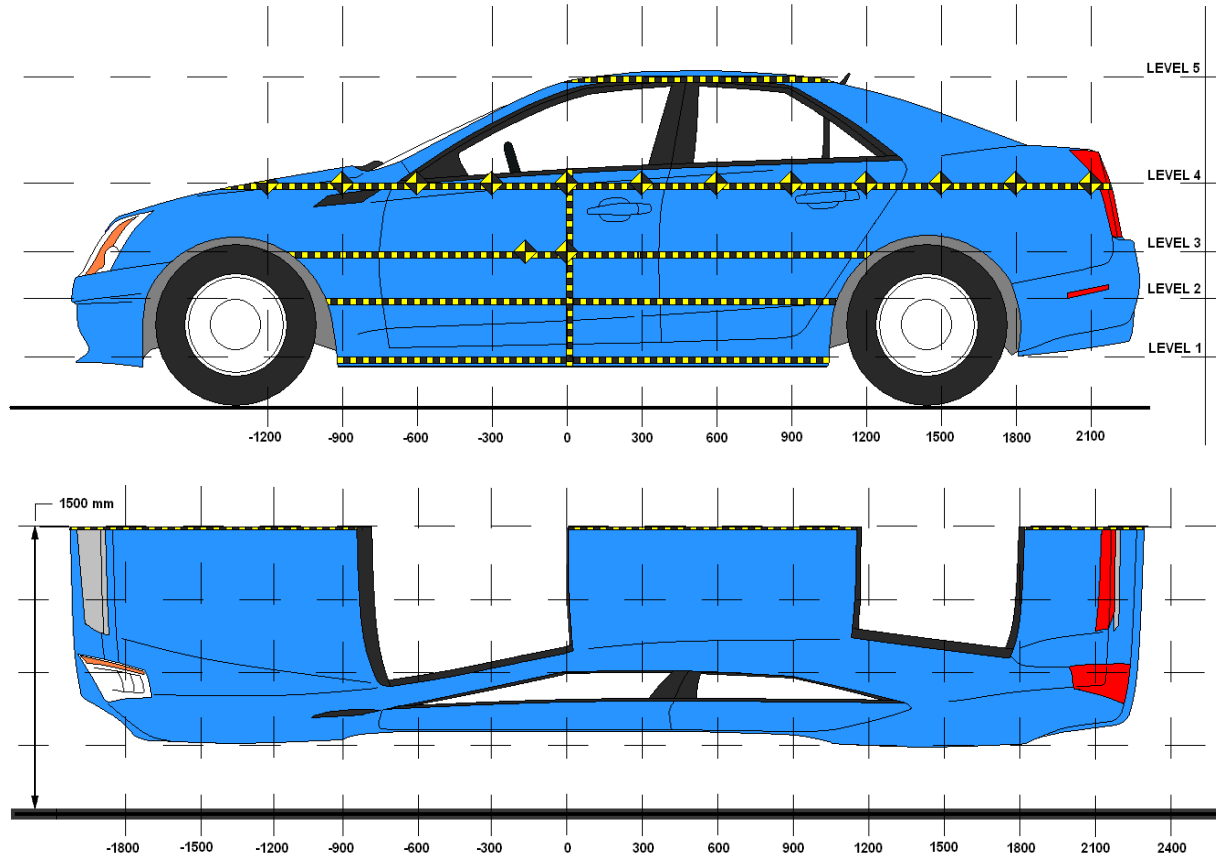
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2688	2648	-40
B	Front Axle to FSOV	900	922	22
C	Rear Axle to RSOV	869	867	-2
D	Total Length at Centerline	4457	4437	-20
E	Front Bumper Thickness	113	110	-3
F	Front Bumper Bottom to Ground	513	527	15
G	Sill Height at Front Wheel Well	285	277	-8
H	Sill Height at Front Door Leading Edge	299	292	-8
I	Sill Height at B-Pillar	309	311	1
J1	Sill Height at Rear Wheel Well	307	318	11
J2	Pinch Weld Height at Rear Wheel Well	270	277	7
K	Sill Height Aft of Rear Wheel Well	407	405	-2
L	Rear Bumper Thickness	168	167	-1
M	Rear Bumper Bottom to Ground	484	485	1
N	Sill Height to Bottom of Front Window Sill	708	743	36
O	Front Door Leading Edge to Impact CL	620	581	-39
P	Rear Door Trailing Edge to Impact CL	1485	1389	-96
Q	Front Window Opening	415	418	3
R	Right Side Length	3300	3301	2
S	Left Side Length	3299	3237	-62
T	Vehicle Width at B-Pillar	1785	1694	-91

DATA SHEET NO. 10

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022



NOTE: All measurements in mm with tolerance of ± 3 mm

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	405	298	0
2	Occupant H-Point	655	284	0
3	Mid-Door	714	292	0
4	Window Sill	1057	245	0
5	Window Top	1511	78	0

DATA SHEET NO. 10 ... (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
 Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test (mm)					Post-Test (mm)					Difference (mm)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900				739					695					-44	
-750		599	593	728			573	567	695			-26	-26	-33	
-600	623	611	613	719		603	593	577	697		-20	-18	-36	-22	
-450	622	621	617	706		659	641	645	719		37	20	28	13	
-300	609	624	618	695		732	739	735	786		123	115	117	91	
-150	607	624	619	683		818	836	826	843		211	212	207	160	
0	605	626	620	672	882	903	910	912	917	960	298	284	292	245	78
150	606	627	622	664	880	860	874	877	898	949	254	247	255	234	69
300	607	630	624	657	883	753	784	779	801	940	146	154	155	144	57
450	610	633	628	654	887	692	716	709	727	932	82	83	81	73	45
600	614	637	631	650	891	677	703	697	711	925	63	66	66	61	34
750	619	641	636	648	893	661	690	684	696	919	42	49	48	48	26
900	625	647	641	649	895	646	677	672	684	914	21	30	31	35	19
1050	643	639	637	654	899	644	651	651	676	910	1	12	14	22	11
1200		619	620	659	901		615	616	669	907		-4	-4	10	6
1350				665	903				663	908				-2	5
1500				669	907				669	909				0	2
1650				674	913				673	915				-1	2
1800				683	923				681	921				-2	-2
1950				697					695					-2	
2100															
2250															
2400															
2550															
2700															
2850															

DATA SHEET NO. 10 ... (CONTINUED)

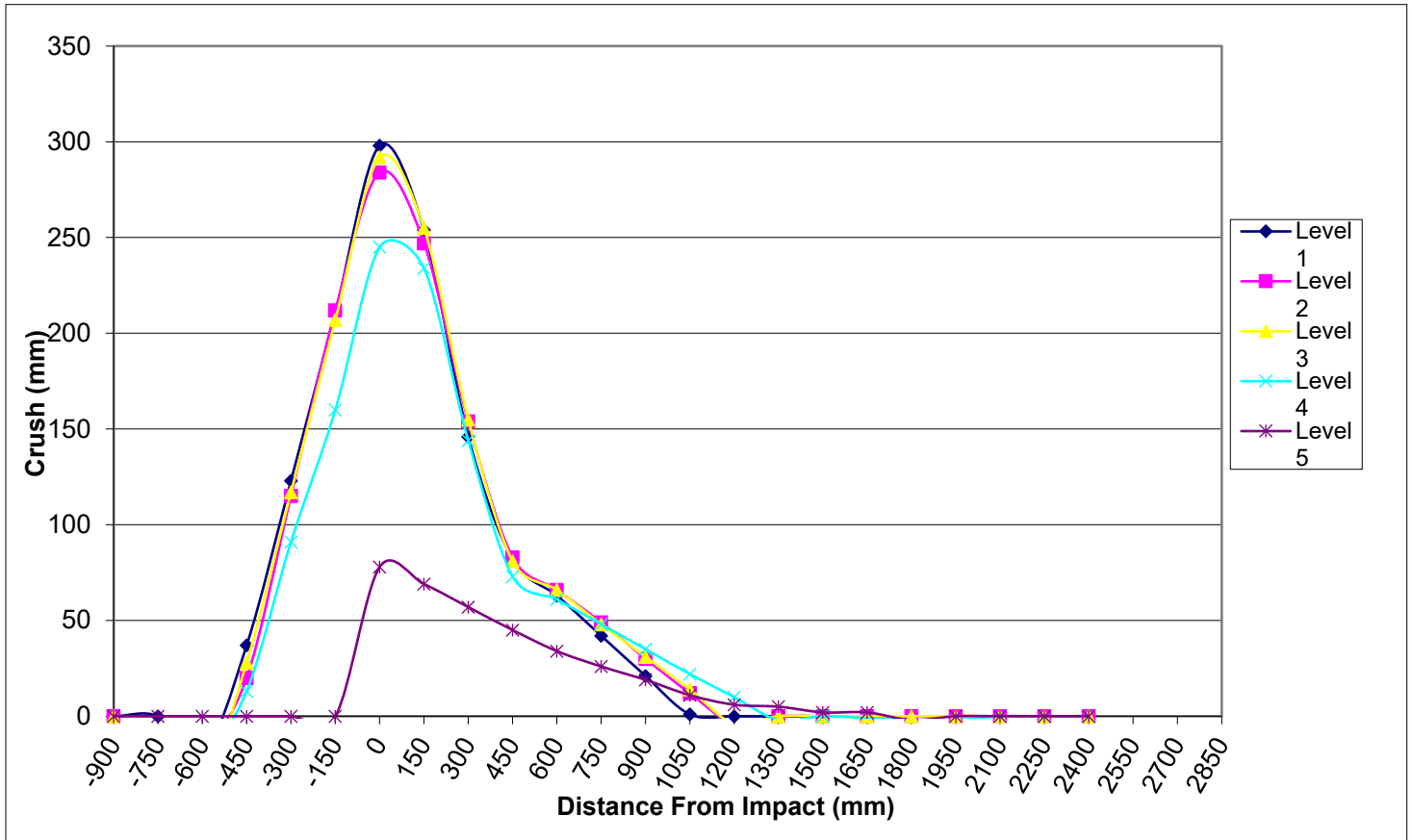
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV

NHTSA No. M20225804

Test Program: NCAP Side Pole Impact Test

Test Date: 05/10/2022

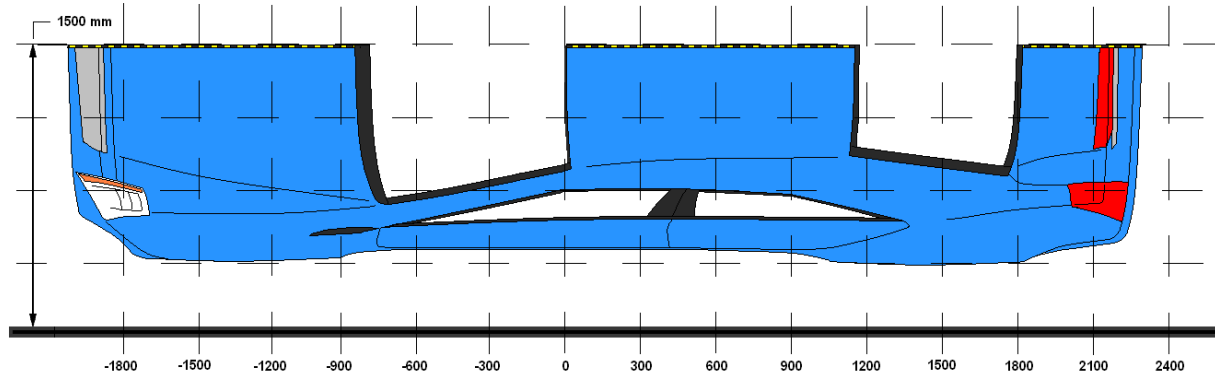


DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804

Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022



DPD	Distance From Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	-900	4	739	695	-44
2	-300	1	609	732	123
3	300	3	624	779	155
4	750	2	641	690	49
5	1350	5	903	908	5
6	1950	4	697	695	-2

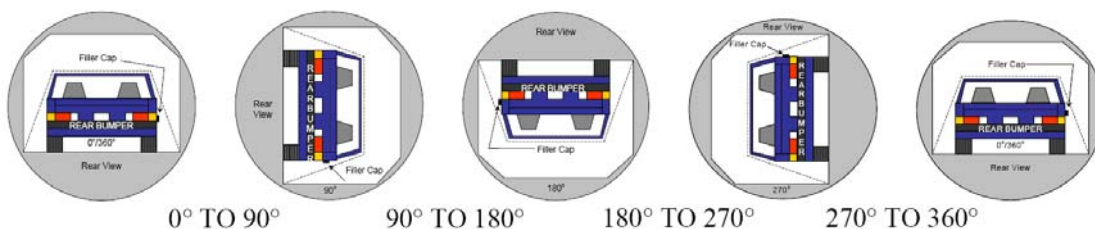
DATA SHEET NO. 12

FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804
 Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022

Temperature at Time of Impact: 18.9° C Test Time: 3:55 PM

- A. From impact until vehicle motion ceases: 0 oz.
 (Maximum allowable = 1 oz.)
- B. For the 5 minute period after motion ceases: 0 oz.
 (Maximum allowable = 5 oz.)
- C. For the following 25 minutes: 0 oz.
 (Maximum allowable = 1 oz./minute)
- D. Spillage Details: There was no Stoddard solvent spillage.



SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	83	300	383
90° To 180°	85	300	385
180° To 270°	81	300	381
270° To 360°	82	300	382

FMVSS 301 SPILLAGE TABLE

Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0° To 90°				
90° To 180°				
180° To 270°				
270° To 360°				

SOLVENT SPILLAGE LOCATION TABLE

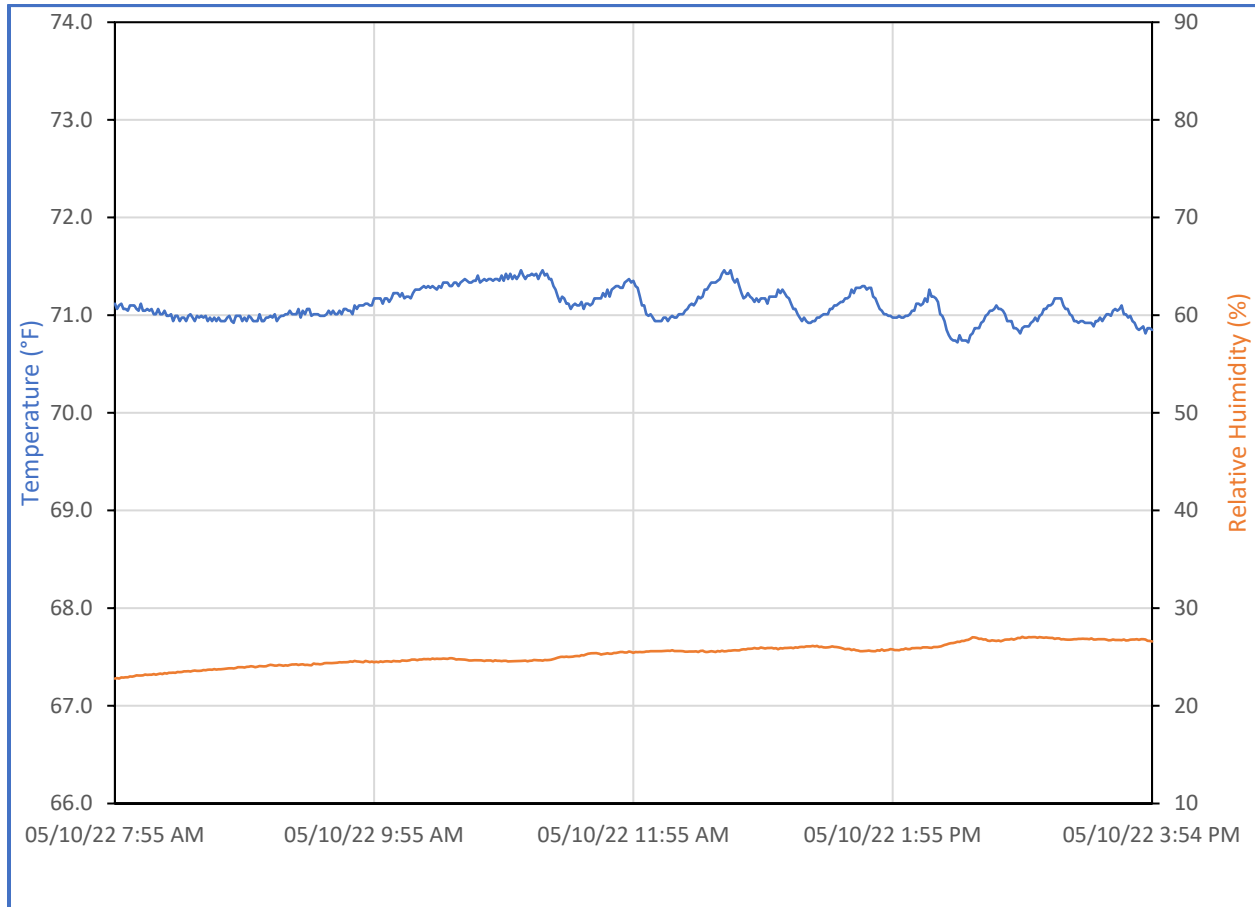
Test Phase	Spillage Location
0° To 90°	
90° To 180°	
180° To 270°	
270° To 360°	

DATA SHEET NO. 13

DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION

Test Vehicle: 2022 Volkswagen Taos 5 Door MPV NHTSA No. M20225804

Test Program: NCAP Side Pole Impact Test Test Date: 05/10/2022



APPENDIX A
PHOTOGRAPHS

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Some Post-Test photographs were taken with the Pre-Test placard instead of the Post-test placard



FIGURE 1. As-Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



FIGURE 2. As-Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 3. Pre-Test Frontal View of Test Vehicle



FIGURE 4. Post-Test Frontal View of Test Vehicle



FIGURE 5. Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle

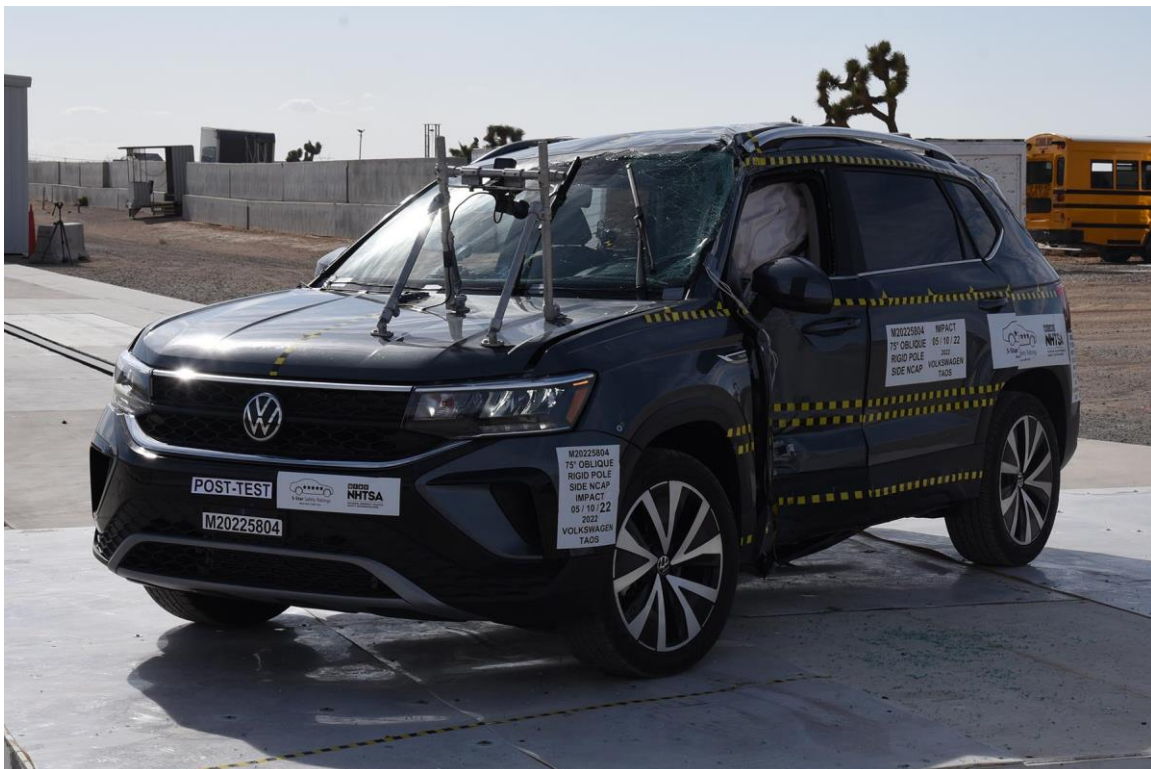


FIGURE 6. Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



FIGURE 7. Pre-Test Left Side View of Test Vehicle



FIGURE 8. Post-Test Left Side View of Test Vehicle



FIGURE 9. Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 10. Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 11. Pre-Test Rear View of Test Vehicle



FIGURE 12. Post-Test Rear View of Test Vehicle



FIGURE 13. Pre-Test Right Side View of Test Vehicle

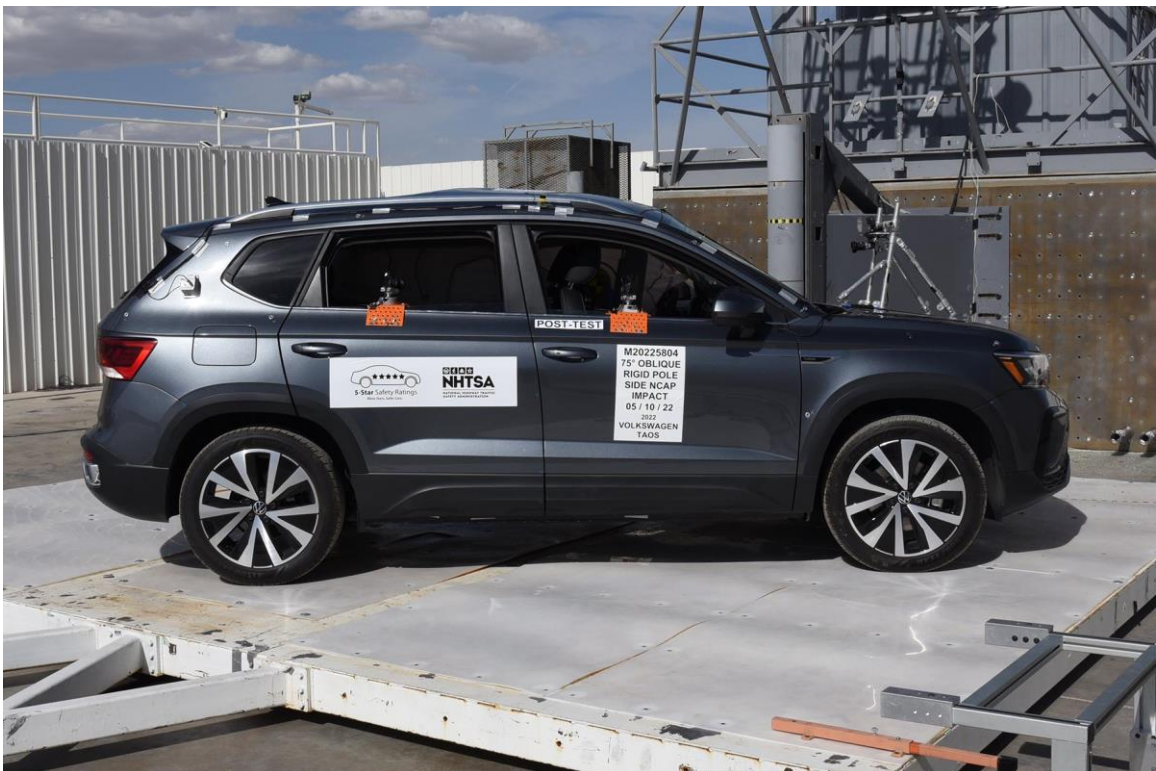


FIGURE 14. Post-Test Right Side View of Test Vehicle



FIGURE 15. Pre-Test Overhead View of Test Area



FIGURE 16. Post-Test Overhead View of Test Area



FIGURE 17. Pre-Test Left Side View of Pole Positioned Against Side of Vehicle



FIGURE 18. Pre-Test Right Side View of Pole Positioned Against Side of Vehicle



FIGURE 19. Pre-Test Close-Up View of Impact Point Target



FIGURE 20. Post-Test Close-Up View of Impact Point Target Showing Impact Location



FIGURE 21. Pre-Test Front Close-Up View of Dummy Head and Chest

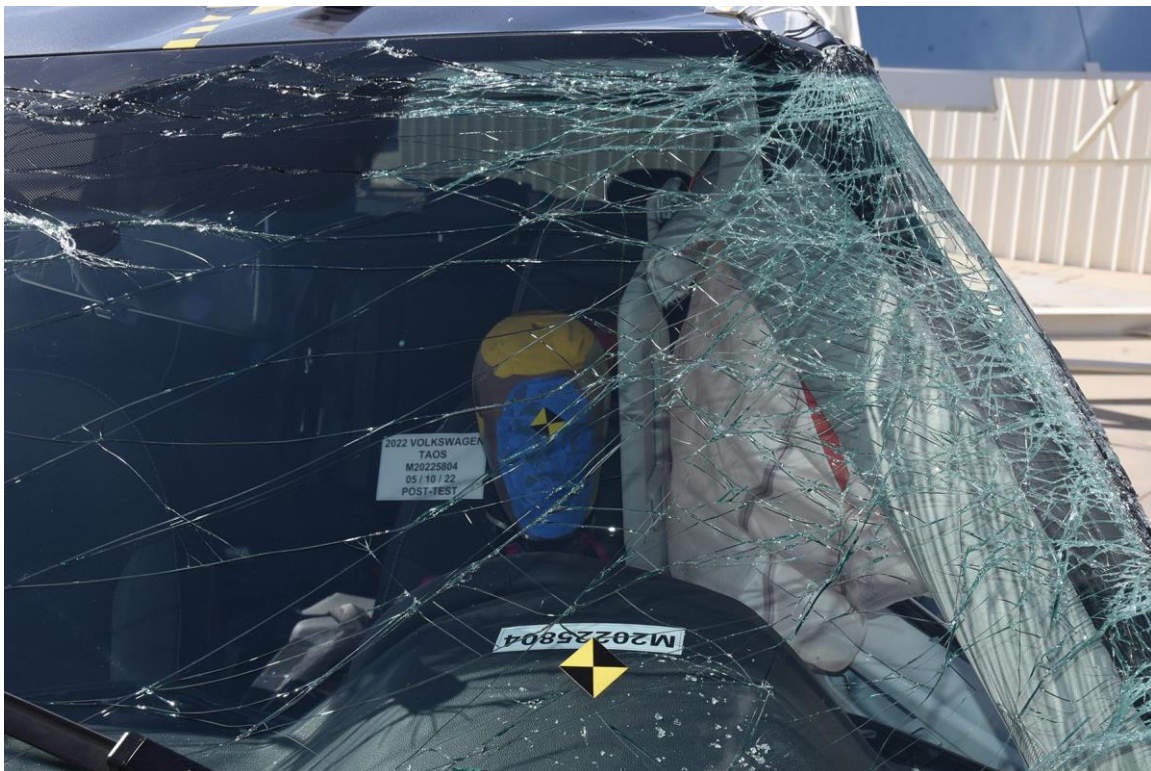


FIGURE 22. Post-Test Front Close-Up View of Dummy



FIGURE 23. Pre-Test Left Side View of Dummy Showing Belt and Chalking

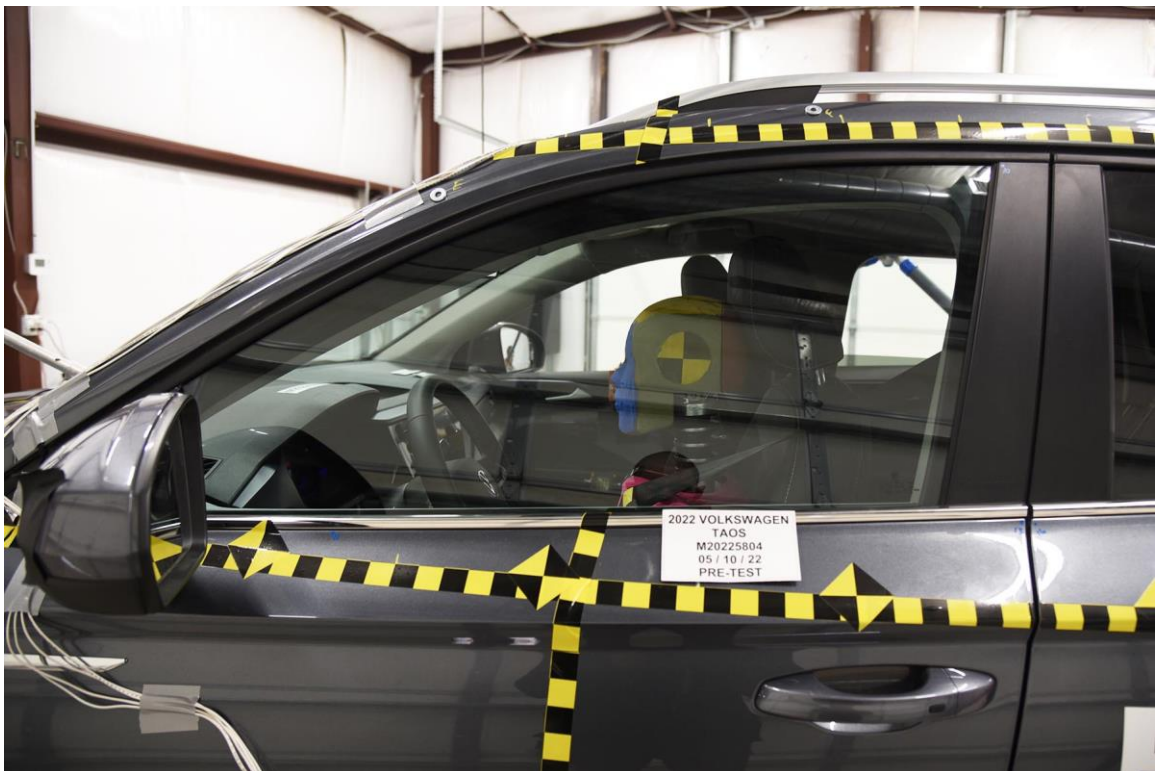


FIGURE 24. Pre-Test Left Side View of Dummy Shoulder and Door Top View



FIGURE 25. Post-Test Left Side View of Dummy Shoulder and Door Top View

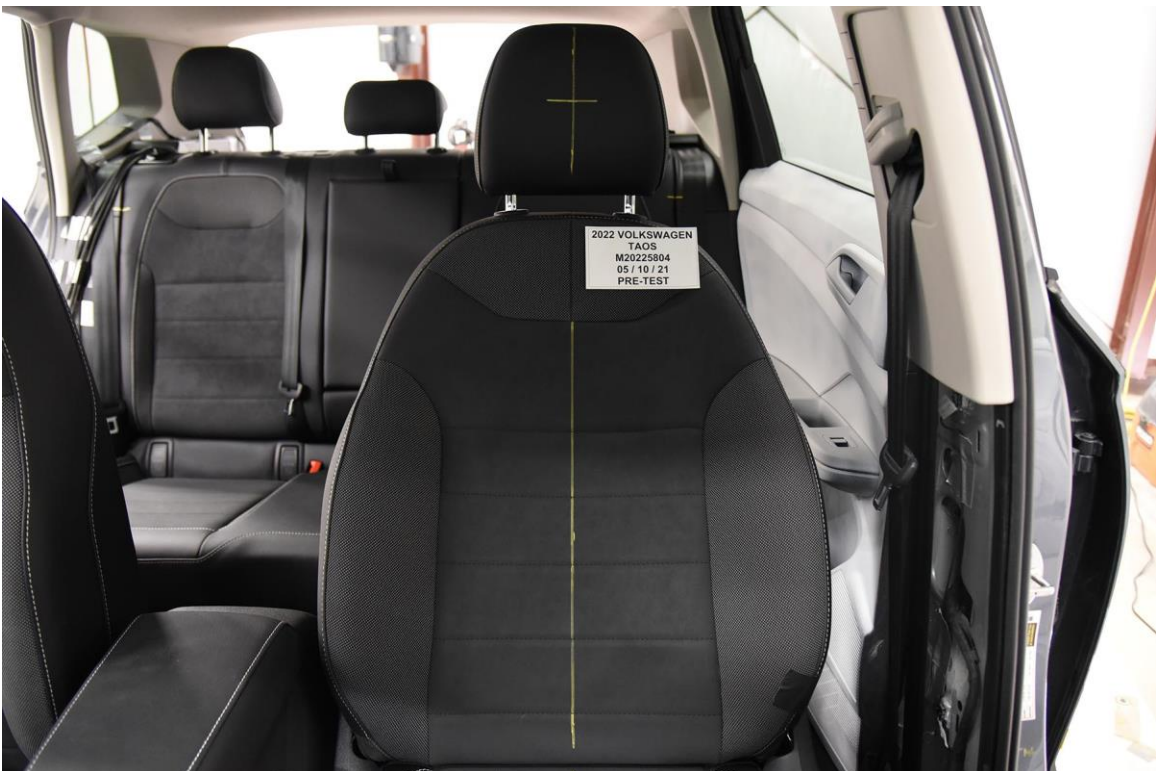


FIGURE 26. Pre-Test Frontal View of Seat Back Prior to Dummy Positioning



FIGURE 27. Pre-Test Frontal Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



FIGURE 28. Pre-Test Overhead View of Seat Pan Prior to Dummy Positioning



FIGURE 29. Pre-Test Overhead View of Dummy Thighs on Seat Pan



FIGURE 30. Pre-Test Left Side View of Dummy's Neck
Showing Position of Adjustable Neck Bracket



FIGURE 31. Pre-Test Left Side View of Dummy's Head
Showing Dummy's Head is Level



FIGURE 32. Pre-Test Placement of Dummy's Feet



FIGURE 33. Pre-Test View of Belt Anchorage for Dummy



FIGURE 34. Pre-Test Left Side View of Steering Wheel



FIGURE 35. View of Disengaged Parking Brake



FIGURE 36. Pre-Test View of Parking Brake



FIGURE 37. Pre-Test Close-Up Left Side View of Driver Seat Track



FIGURE 38. Pre-Test Close-Up Left Side View of Driver Seat Back



FIGURE 39. Pre-Test Close-Up View of Driver Seat Back or Head Restraint



FIGURE 40. Pre-Test Dummy and Door Clearance View



FIGURE 41. Post-Test Dummy and Door Clearance View



FIGURE 42. Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



FIGURE 43. Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment



FIGURE 44. Pre-Test Inner Door Panel View



FIGURE 45. Post-Test Inner Door Panel View Showing Dummy Contact Locations



FIGURE 46. Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



FIGURE 47. Post-Test Dummy Close-Up Head Contact With Side Airbag View



FIGURE 48. Post-Test Dummy Close-Up Torso Contact With Vehicle Interior View



FIGURE 49. Post-Test Dummy Close-Up Torso Contact With Side Airbag View



FIGURE 50. Post-Test Dummy Close-Up Pelvis Contact With Vehicle Interior View



FIGURE 51. Post-Test Dummy Close-Up Pelvis Contact With Side Airbag View

**Photograph Not Applicable
No Knee Contact Present**

FIGURE 52. Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View



FIGURE 53. Post-Test Right Side View of Dummy and Rear Seat of Occupant Compartment



FIGURE 54. Pre-Test Inner Rear Passenger Torso Airbag Deployment View



FIGURE 55. Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 56. Post-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 57. Close-Up View of Vehicle's Certification Label



FIGURE 58. Close-Up View of Vehicle's Tire Information Placard or Label



FIGURE 59. Pre-Test Pole Barrier Front View



FIGURE 60. Post-Test Pole Barrier Front View



FIGURE 61. Pre-Test Pole Barrier Side View



FIGURE 62. Post-Test Pole Barrier Side View

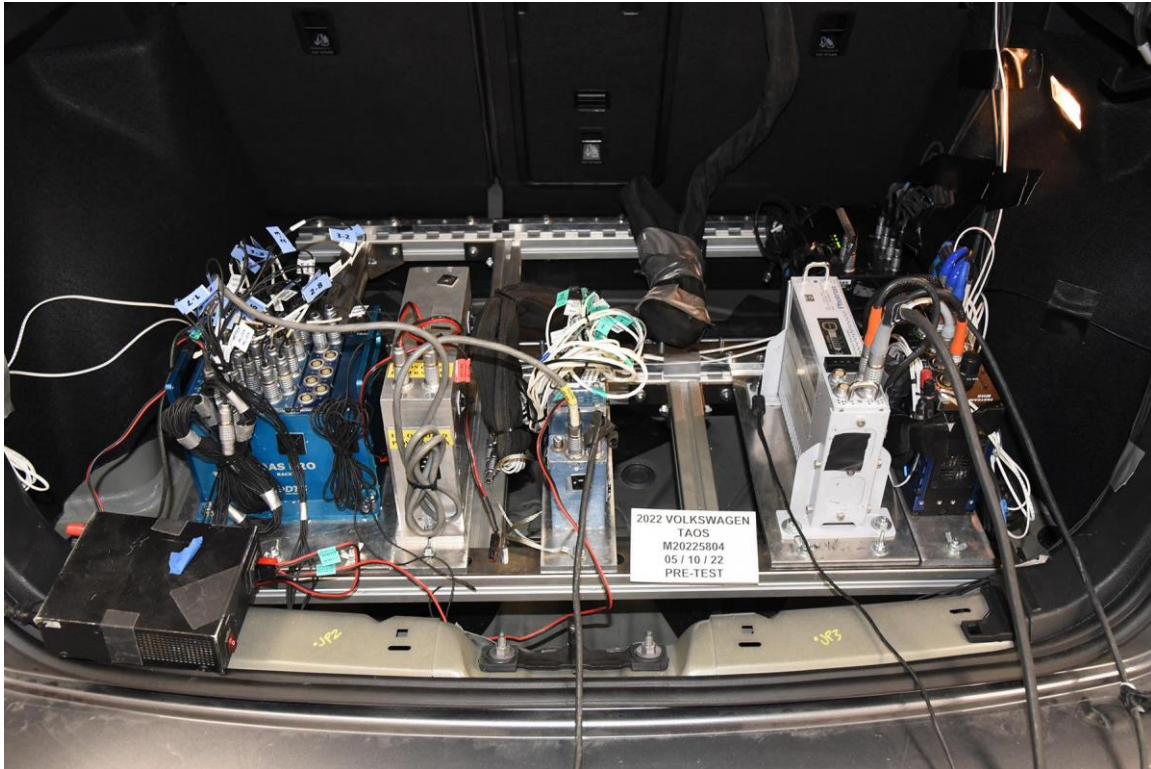


FIGURE 63. Pre-Test Ballast View



FIGURE 64. Post-Test Primary and Redundant Speed Trap Read-Out



FIGURE 65. FMVSS No. 301 Static Rollover 0 Degrees



FIGURE 66. FMVSS No. 301 Static Rollover 90 Degrees



FIGURE 67. FMVSS No. 301 Static Rollover 180 Degrees

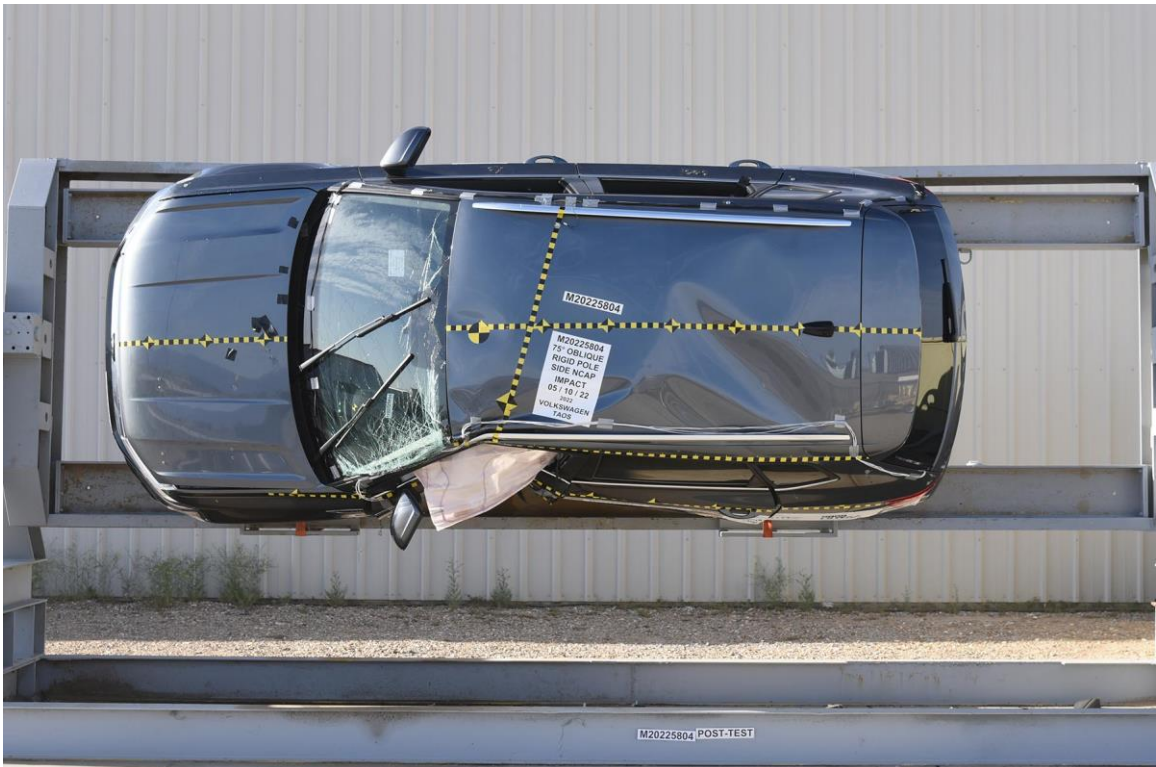


FIGURE 68. FMVSS No. 301 Static Rollover 270 Degrees



FIGURE 69. FMVSS No. 301 Static Rollover 360 Degrees



FIGURE 70. Impact Event

Photograph Not Available

FIGURE 71. Monroney Label



FIGURE 72. Head Restraint Use and Adjustment Information
from Vehicle Owner's Manual



FIGURE 73. Post-Test View of Shattered Vehicle Inner Door Panel

APPENDIX B
DUMMY RESPONSE DATA

TABLE OF DATA PLOTS

Plot		Page
1	Driver Head Acceleration (X) Primary	B-1
2	Driver Head Acceleration (Y) Primary	B-1
3	Driver Head Acceleration (Z) Primary	B-1
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5	Driver Lower Spine T12 Acceleration (X)	B-2
6	Driver Lower Spine T12 Acceleration (Y)	B-2
7	Driver Lower Spine T12 Acceleration (Z)	B-2
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9	Driver Upper Thorax Rib Deflection (Y)	B-3
10	Driver Middle Thorax Rib Deflection (Y)	B-3
11	Driver Lower Thorax Rib Deflection (Y)	B-3
12	Driver Upper Abdomen Rib Deflection (Y)	B-3
13	Driver Lower Abdomen Rib Deflection (Y)	B-4
14	Driver Acetabulum Force on Impact Side (Y)	B-4
15	Driver Iliac Wing Force on Impact Side (Y)	B-4
16	Driver Total Pelvis Force on Impact Side (Y)	B-4

The following additional data for this test can be obtained from the Research and Development section of the NHTSA website. The website can be found at

www.NHTSA.gov

Additional Driver Dummy Instrumentation Data

Driver Head Acceleration Redundant (X)

Driver Head Acceleration Redundant (Y)

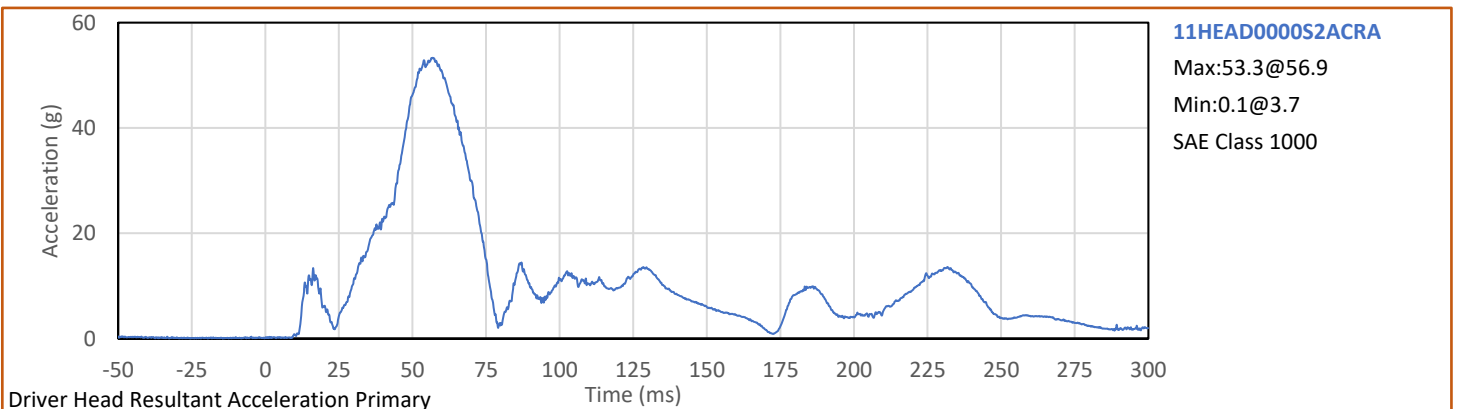
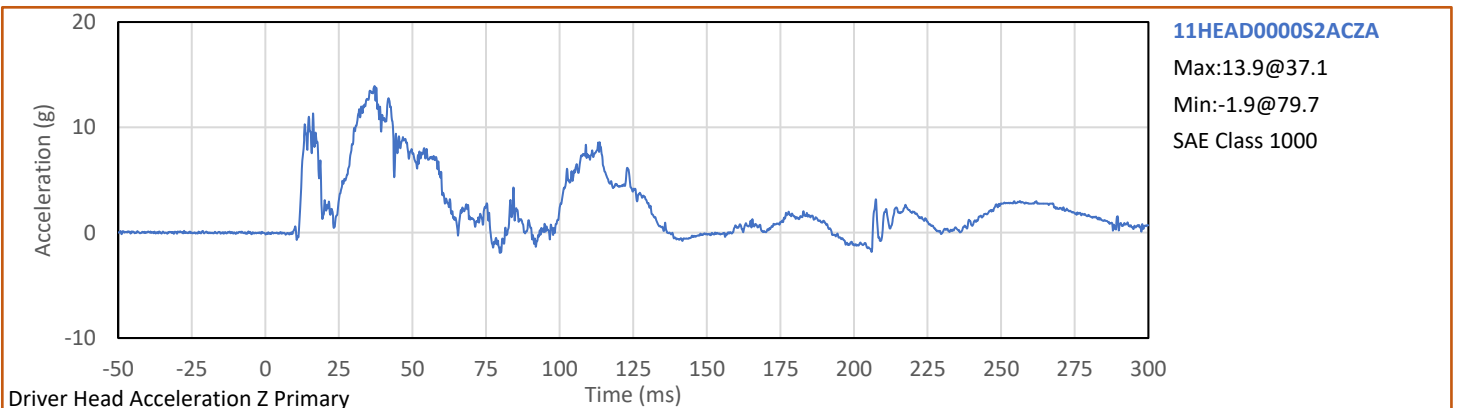
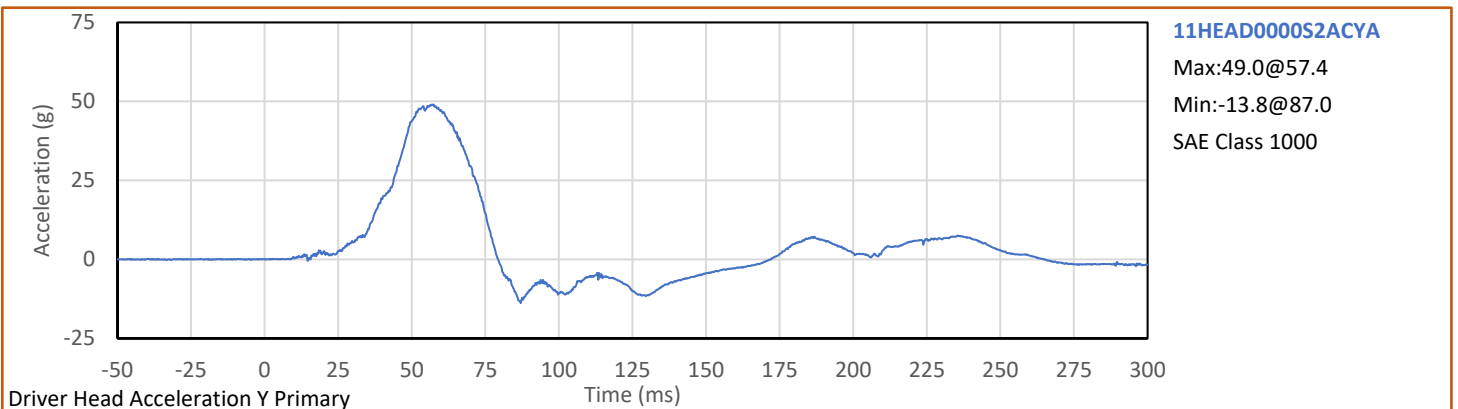
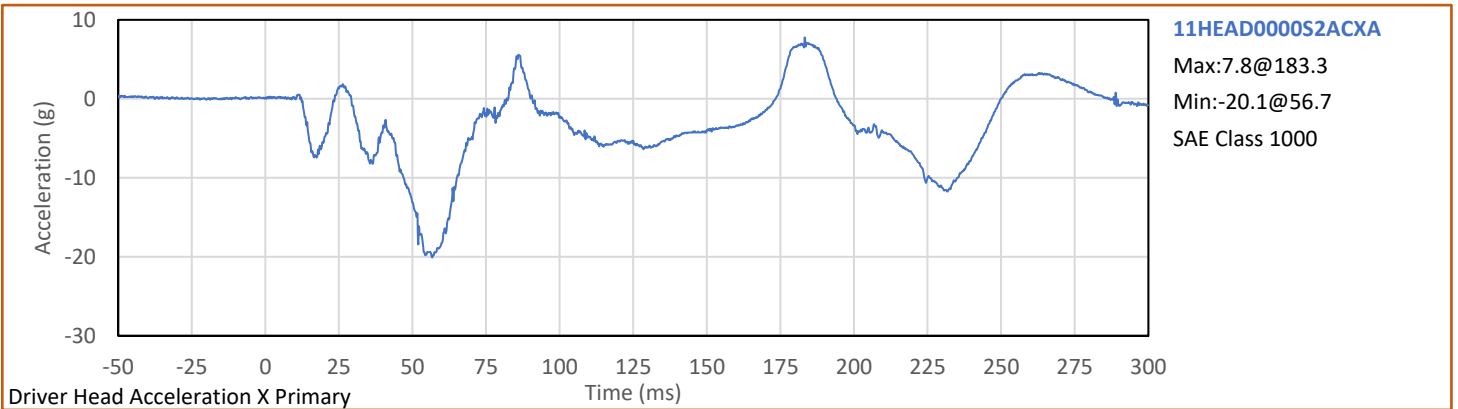
Driver Head Acceleration Redundant (Z)

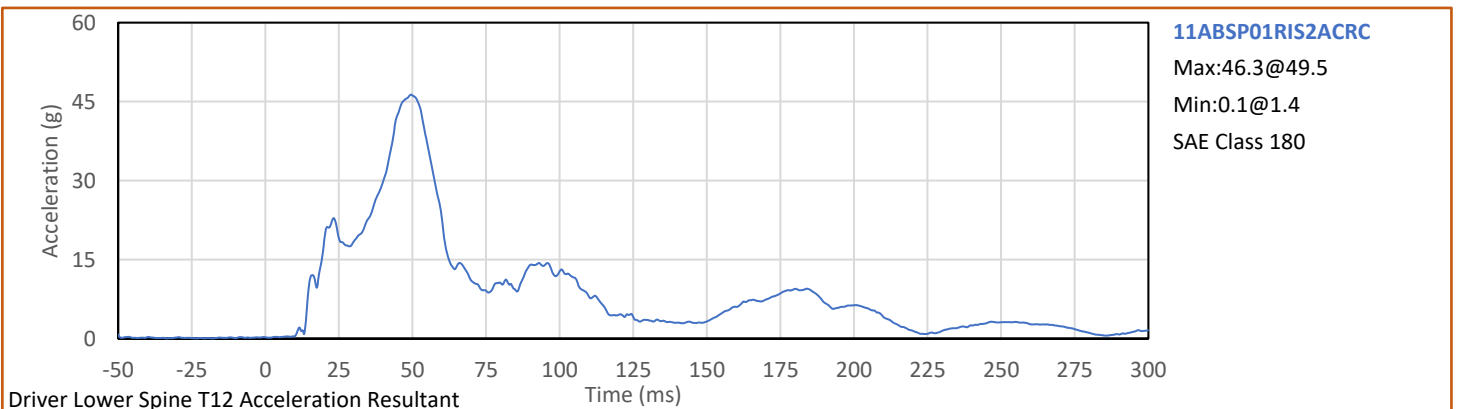
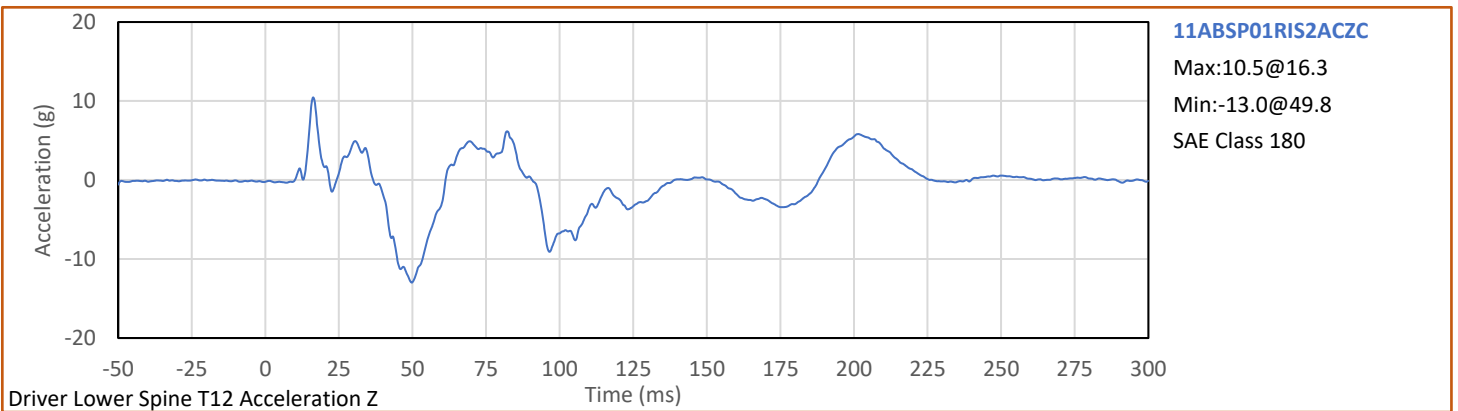
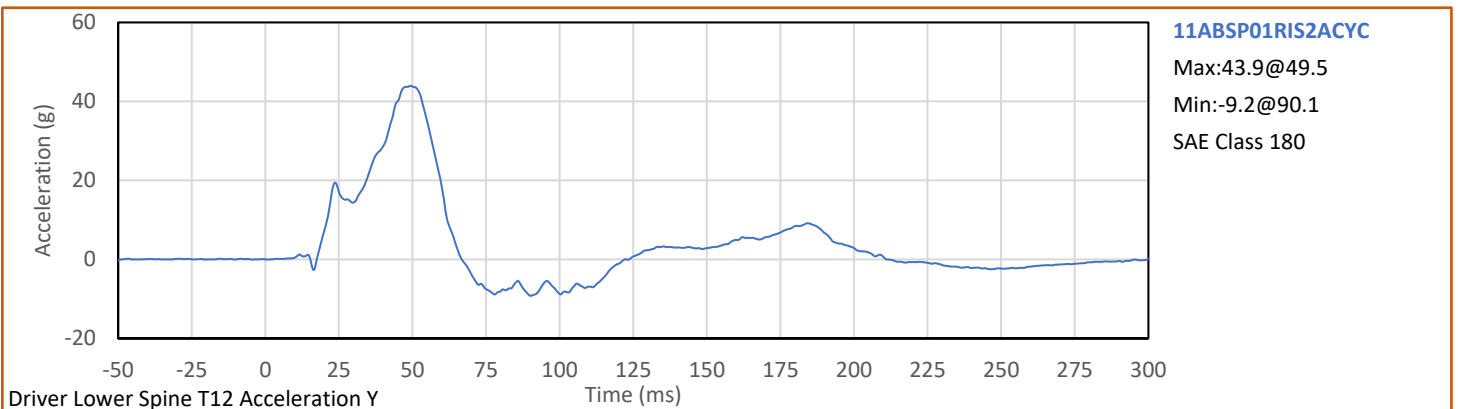
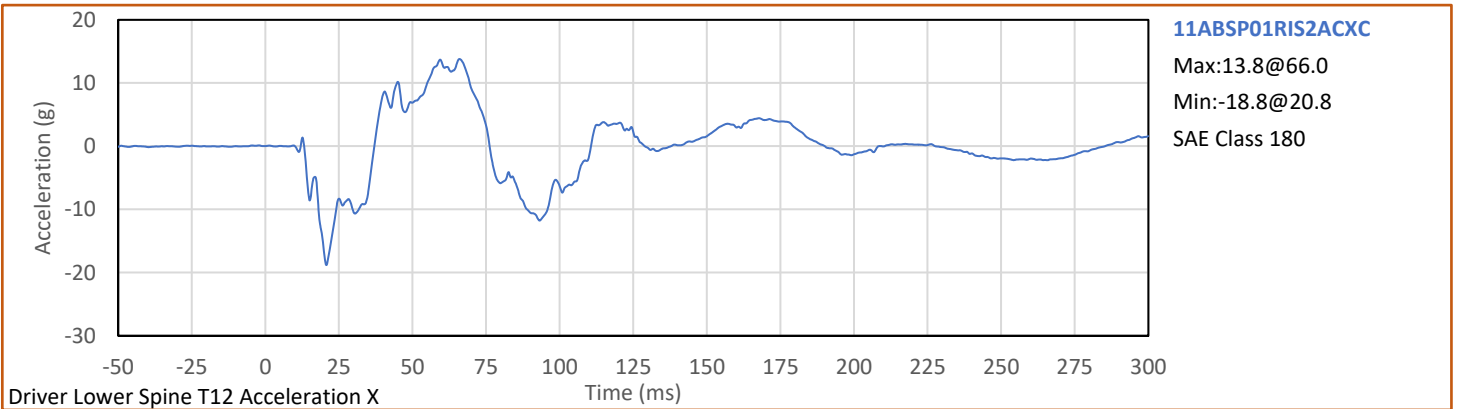
Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)
Left B-Pillar Sill Acceleration
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy Hip Point Acceleration (Y)
Engine Top Acceleration (X)
Engine Top Acceleration (Y)
Firewall Center Acceleration (Y)
Right Roof at Vertical Impact Reference Line Acceleration (Y)
Right Sill at Vertical Impact Reference Line Acceleration (Y)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

Pole Instrumentation Data

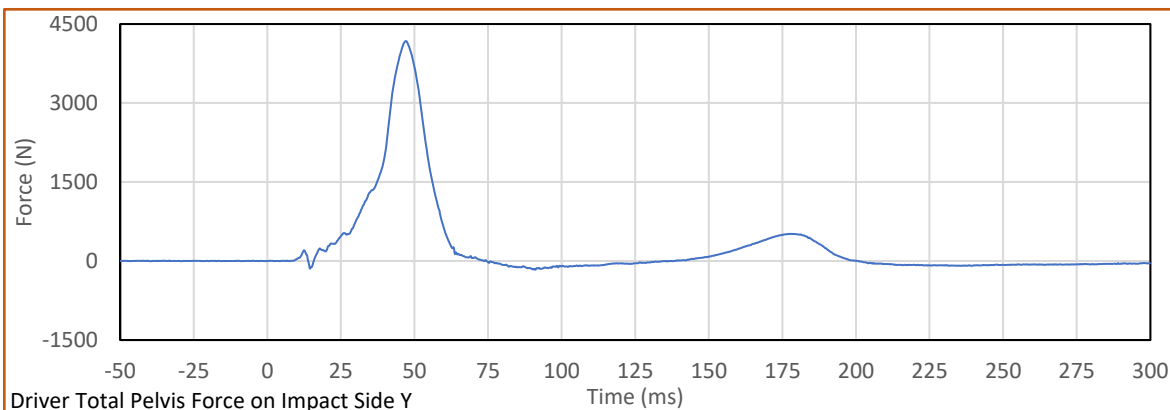
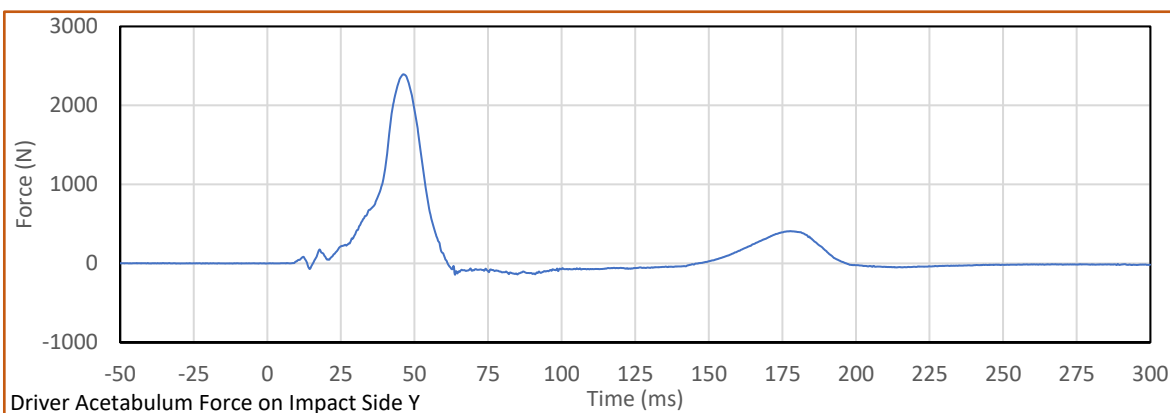
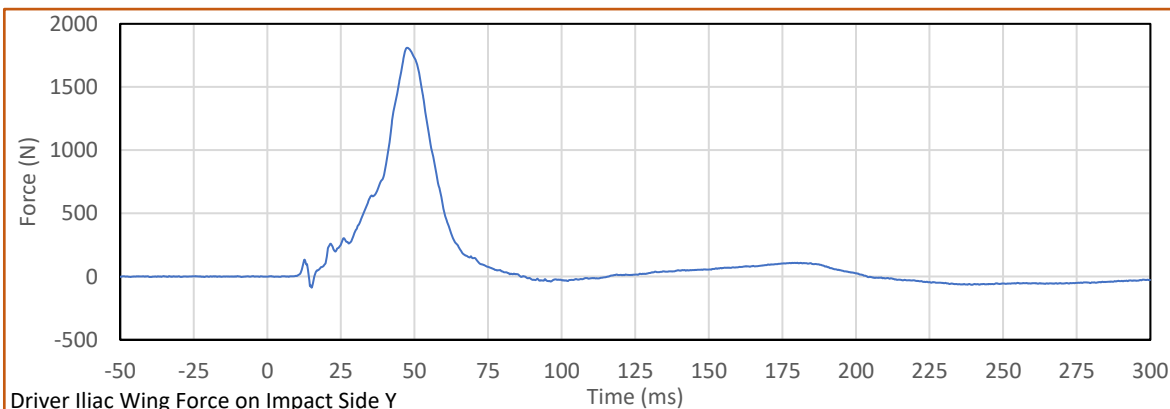
Load Cell Pole Barrier #1 Force (Y)
Load Cell Pole Barrier #2 Force (Y)
Load Cell Pole Barrier #3 Force (Y)
Load Cell Pole Barrier #4 Force (Y)
Load Cell Pole Barrier #5 Force (Y)
Load Cell Pole Barrier #6 Force (Y)
Load Cell Pole Barrier #7 Force (Y)
Load Cell Pole Barrier #8 Force (Y)





Test Vehicle: 2022 Volkswagen Taos 5-Door MPV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20225804
Test Date: 5/10/2022



APPENDIX C
ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA

APPENDIX C
Pre-Test ATD Qualification and Performance Verification
SID-IIs Small Side Impact ATD, Left Side Configuration
S/N: 299

ATD Serial No.: 299

Test Date: 2022-04-18

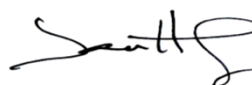
Tested Parameter	Units	Spec Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Relative Humidity	%	10	70	22	Pass
A - Sitting Height	mm	772	788	779	Pass
B - Shoulder Pivot Height	mm	437	453	450	Pass
C - Hpoint Height	mm	79	89	86	Pass
D - H Point From Seatback	mm	141	151	146	Pass
E - Shoulder Pivot From Backline	mm	97	107	101	Pass
F - Thigh Clearance	mm	119	135	127	Pass
G - Head Breadth	mm	140	148	144	Pass
H - Head Back From Backline	mm	40	46	42	Pass
I - Head Depth	mm	178	188	185	Pass
J - Head Circumference	mm	541	551	549	Pass
K - Buttock To Knee Length	mm	514	540	534	Pass
L - Popliteal Height	mm	343	369	350	Pass
K - Knee Pivot To Floor Height	mm	392	409	399	Pass
N - Buttock Popliteal Length	mm	416	442	431	Pass
O - Chest Depth W/O Jacket	mm	195	211	205	Pass
P - Foot Length	mm	216	232	222	Pass
Q - Hip Breadth (W/Pelvic Plugs)	mm	313	323	319	Pass
R - Arm Length	mm	249	259	256	Pass
S - Knee Joint To Seatback	mm	477	493	491	Pass
V - Shoulder Width	mm	341	357	346	Pass
W - Foot Width	mm	78	94	85	Pass
Y - Chest Circumference W/Jacket	mm	851	881	859	Pass
Z - Waist Circumference	mm	761	791	787	Pass
				Overall Test Results	Pass

Technician:



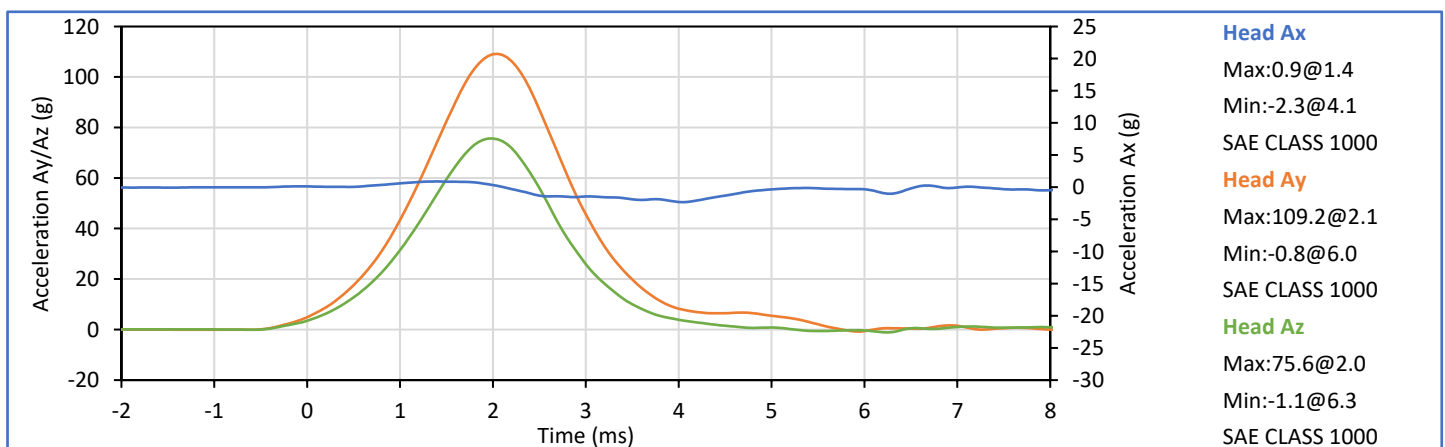
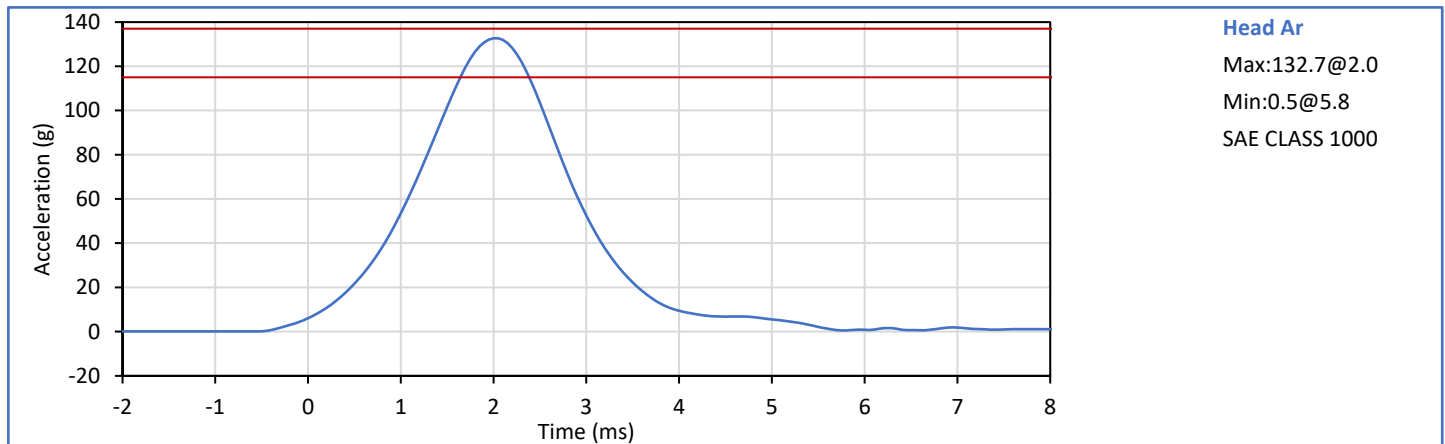
G. Holguin

Approved By:



J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	22.2	Pass
Laboratory Relative Humidity	%	10	70	35	Pass
Peak Resultant Acceleration	g	115.0	137.0	132.7	Pass
Peak Head Ax	g	-15.0	15.0	-2.3	Pass
Oscillations After Main Pulse	%	0.0	15.0	1.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results	Pass	



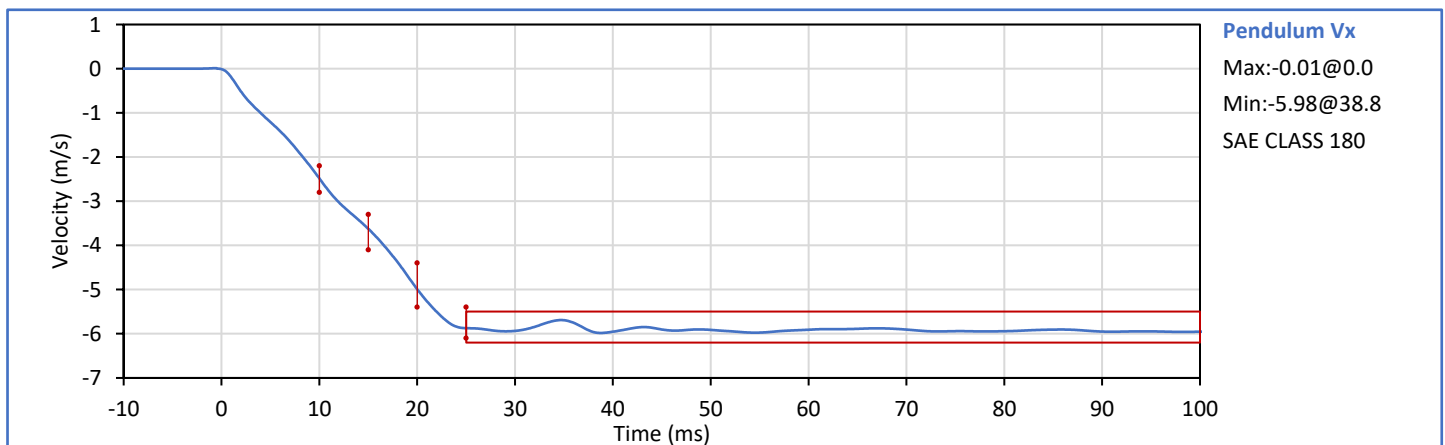
Technician:

G. Holguin

Approved By:

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.8	Pass
Laboratory Relative Humidity	%	10	70	35	Pass
Pendulum Velocity	m/s	5.51	5.63	5.59	Pass
Pendulum Decel at 10 ms	m/s	-2.80	-2.20	-2.48	Pass
Pendulum Decel at 15 ms	m/s	-4.10	-3.30	-3.63	Pass
Pendulum Decel at 20 ms	m/s	-5.40	-4.40	-4.99	Pass
Pendulum Decel at 25 ms	m/s	-6.10	-5.40	-5.88	Pass
Pendulum Decel from 25-100 ms	m/s	-6.20	-5.50	-5.98/-5.69	Pass
Peak "D" Plane Rotation	deg	-81.0	-71.0	-75.3	Pass
Time of Peak "D" Plane Rotation	ms	50.0	70.0	59.0	Pass
Peak Occ. Condyle Moment	Nm	36.0	44.0	42.7	Pass
Time of Moment Decay to 0 Nm	ms	102.0	126.0	112.1	Pass
				Overall Test Results	Pass

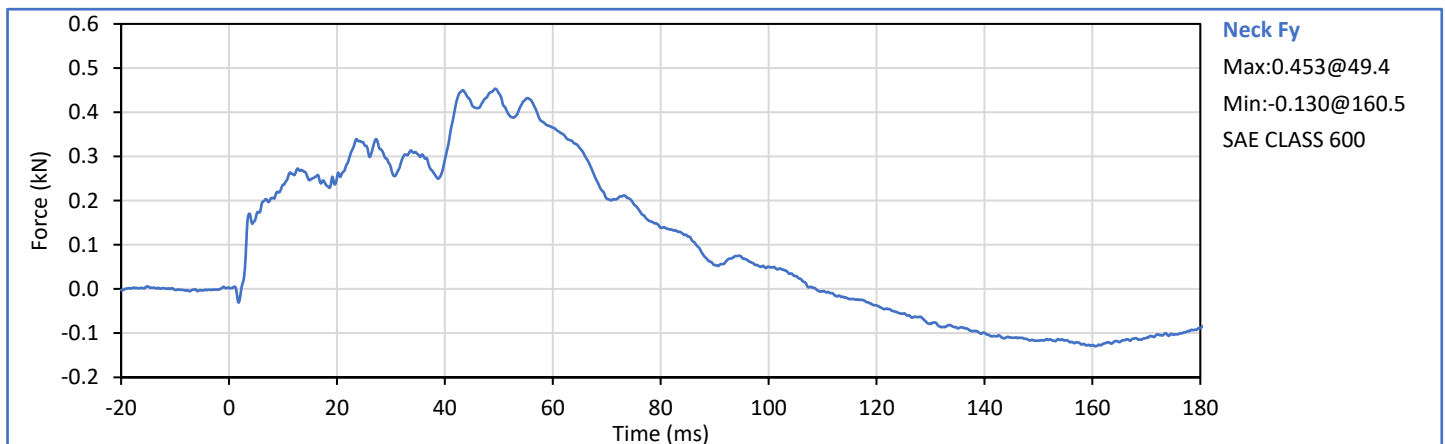
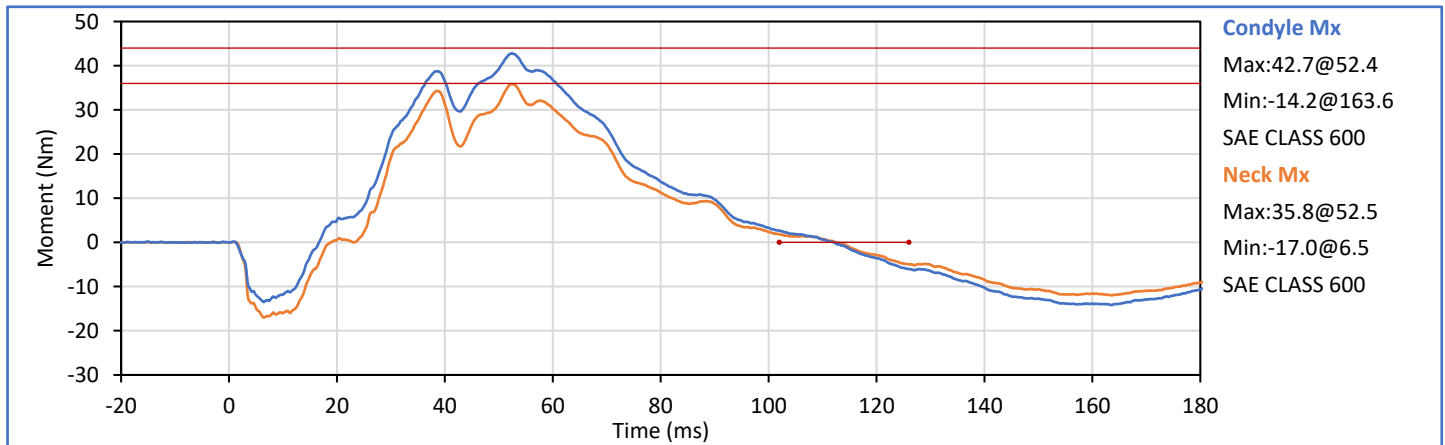
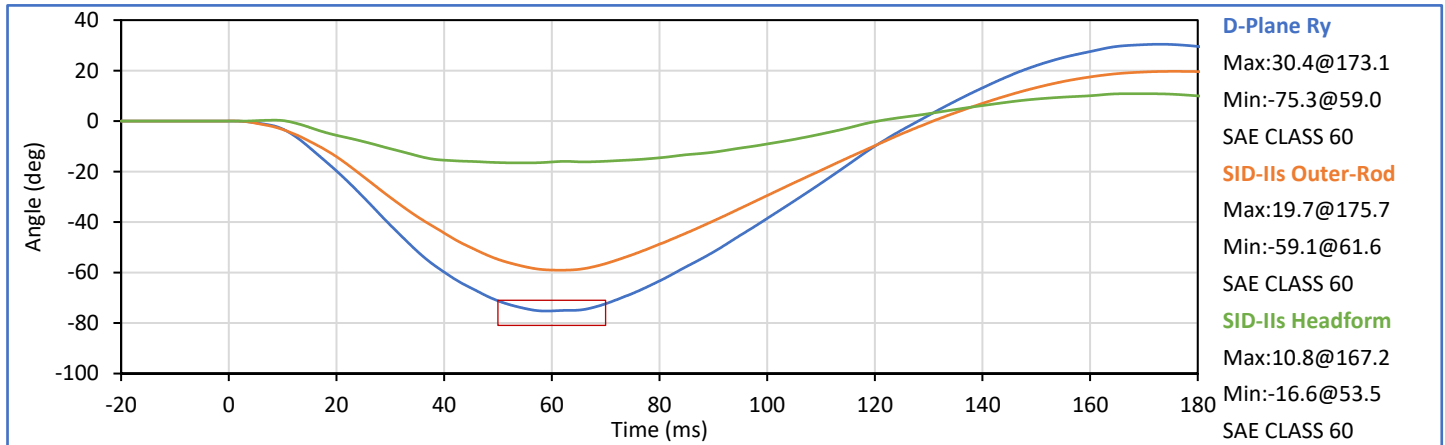


Technician:

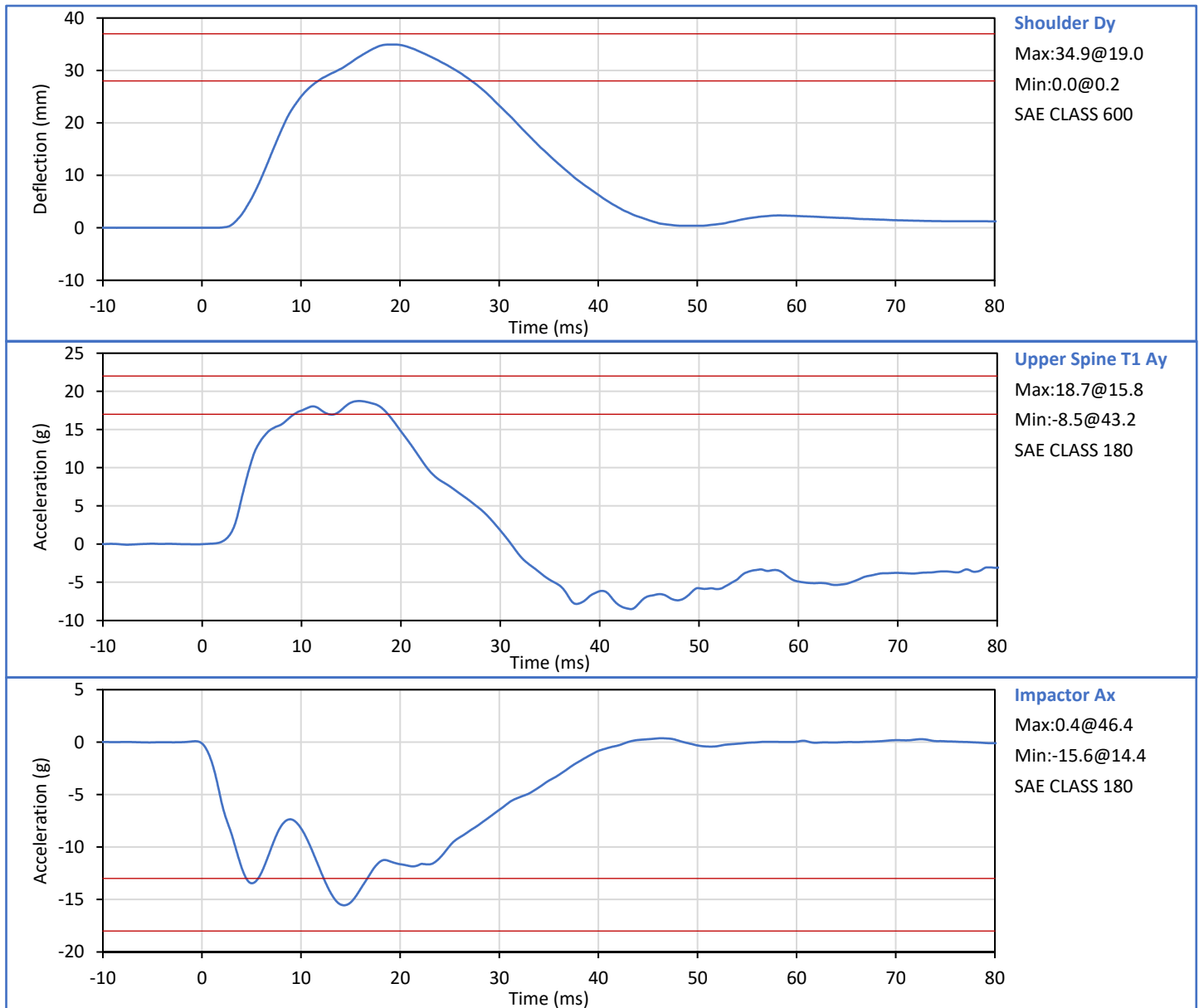
G. Holguin

Approved By:

J. Hernandez



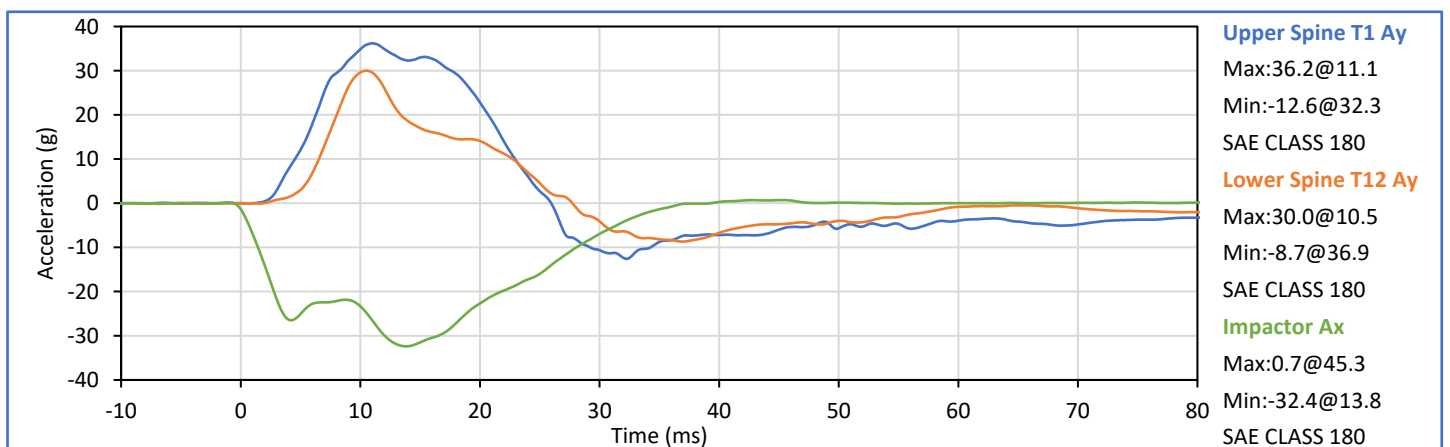
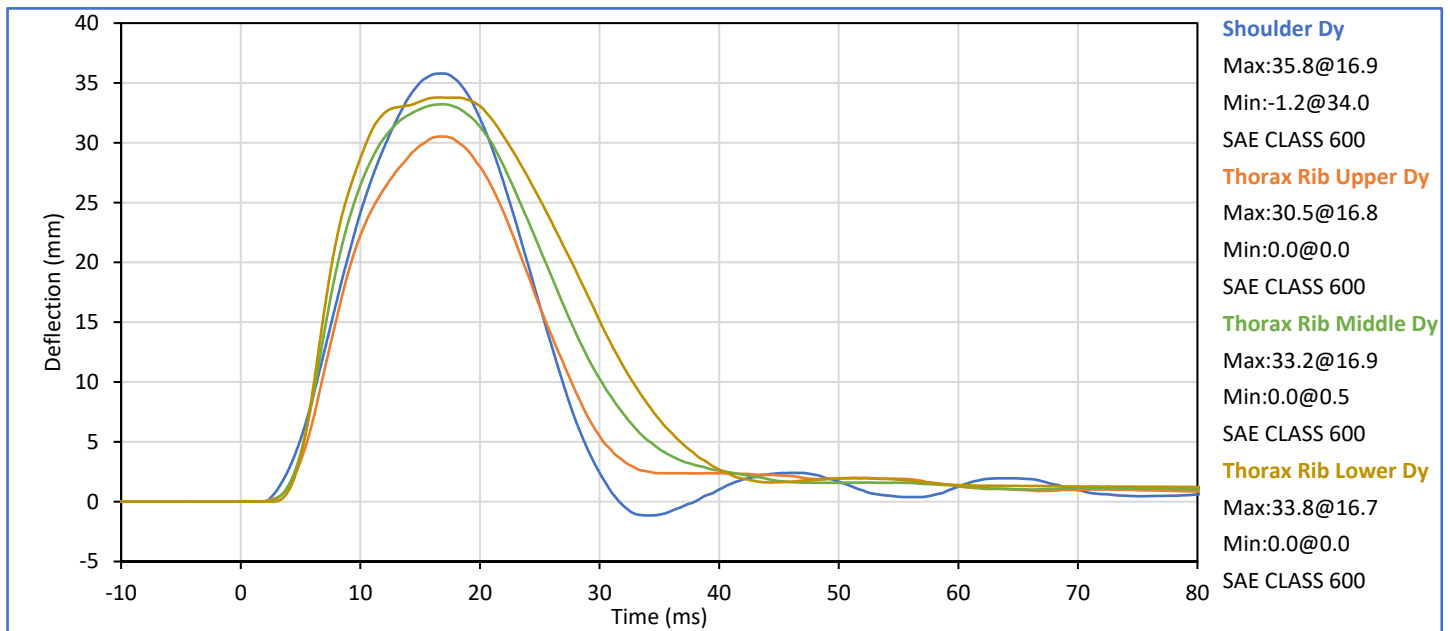
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	28	Pass
Impactor Velocity	m/s	4.20	4.40	4.36	Pass
Peak Shoulder Dy	mm	28.0	37.0	34.9	Pass
Peak Upper Spine (T1) Ay	g	17.0	22.0	18.7	Pass
Peak Impactor Ax	g	-18.0	-13.0	-15.6	Pass
Overall Test Results					Pass



Technician: G. Holguin

Approved By: J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Relative Humidity	%	10	70	29	Pass
Impactor Velocity	m/s	6.60	6.80	6.65	Pass
Peak Shoulder Dy	mm	31.0	40.0	35.8	Pass
Peak Upper Rib Dy	mm	25.0	32.0	30.5	Pass
Peak Middle Rib Dy	mm	30.0	36.0	33.2	Pass
Peak Lower Rib Dy	mm	32.0	38.0	33.8	Pass
Peak Upper Spine (T1) Ay	g	34.0	43.0	36.2	Pass
Peak Lower Spine (T12) Ay	g	29.0	37.0	30.0	Pass
Peak Impactor Ax	g	-36.0	-30.0	-32.4	Pass
Overall Test Results					Pass



Technician:

G. Holguin

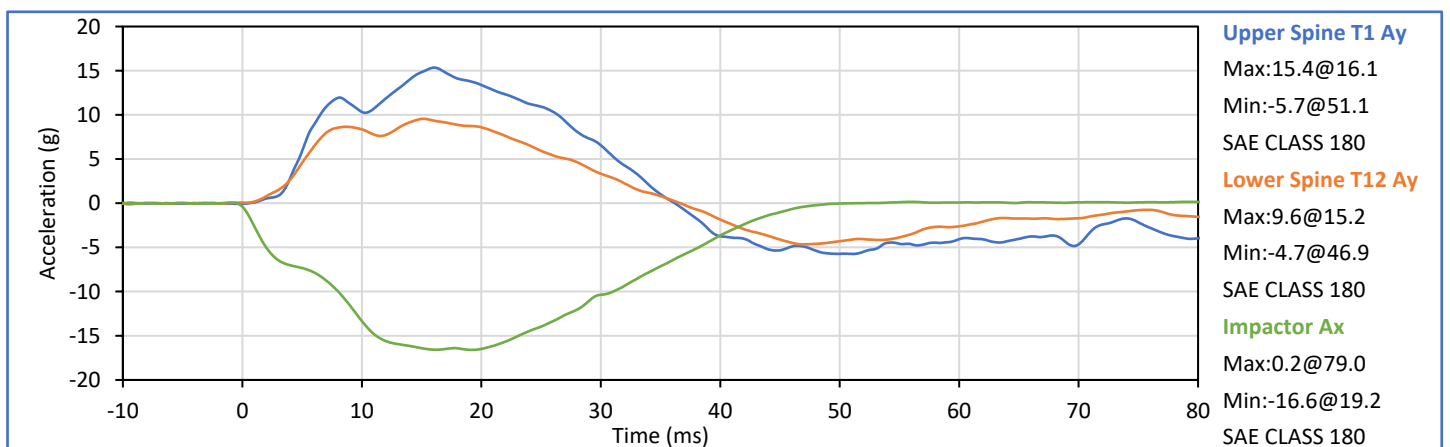
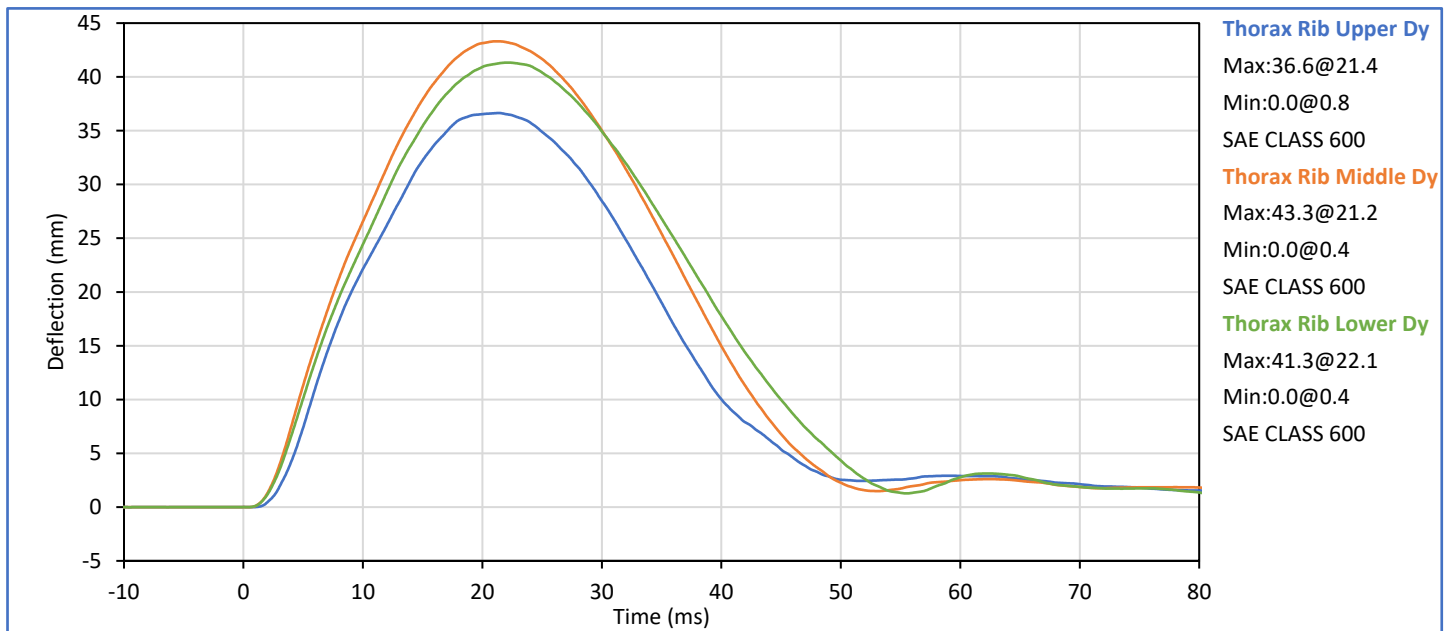
G. Holguin

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	29	Pass
Impactor Velocity	m/s	4.20	4.40	4.37	Pass
Peak Thorax Rib Upper Dy	mm	32.0	40.0	36.6	Pass
Peak Thorax Rib Middle Dy	mm	39.0	45.0	43.3	Pass
Peak Thorax Rib Lower Dy	mm	35.0	43.0	41.3	Pass
Peak Spine Upper T1 Ay	g	13.0	17.0	15.4	Pass
Peak Spine Lower T12 Ay	g	7.0	11.0	9.6	Pass
Peak Impactor Ax	g	-18.0	-14.0	-16.6	Pass
Overall Test Results					Pass



Technician:

G. Holguin

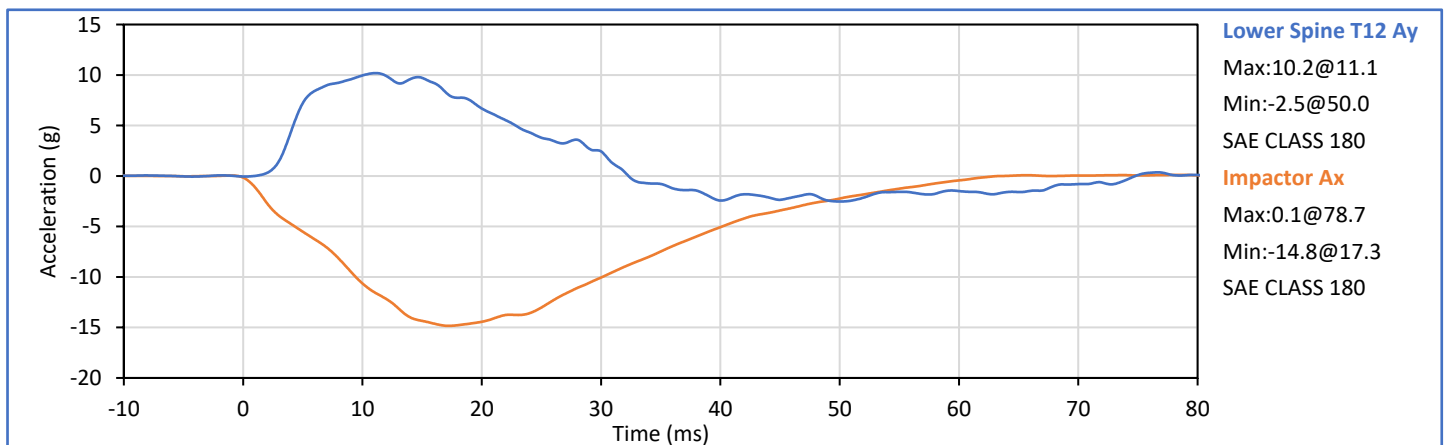
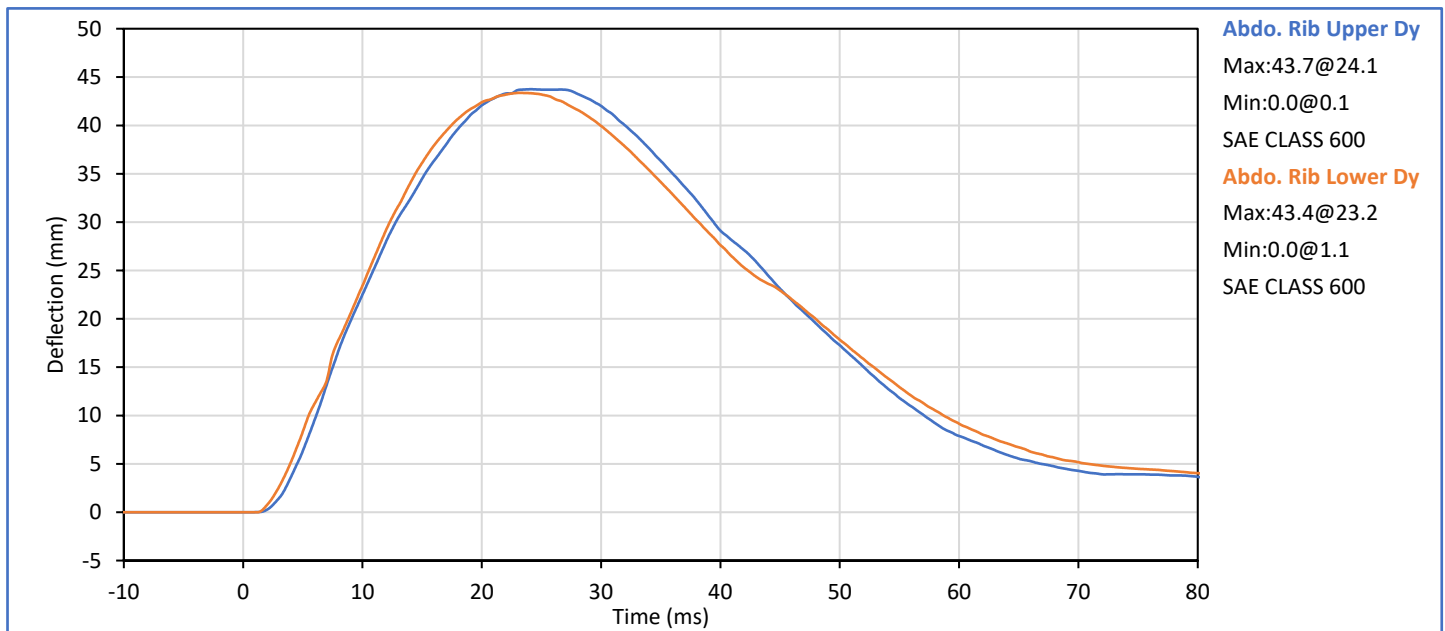
G. Holguin

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	29	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Upper Abdomen Rib Dy	mm	36.0	47.0	43.7	Pass
Peak Lower Abdomen Rib Dy	mm	33.0	44.0	43.4	Pass
Peak Lower Spine T12 Ay	mm	9.0	14.0	10.2	Pass
Peak Impactor Ax	g	-16.0	-12.0	-14.8	Pass
Overall Test Results					Pass



Technician:

G. Holguin

G. Holguin

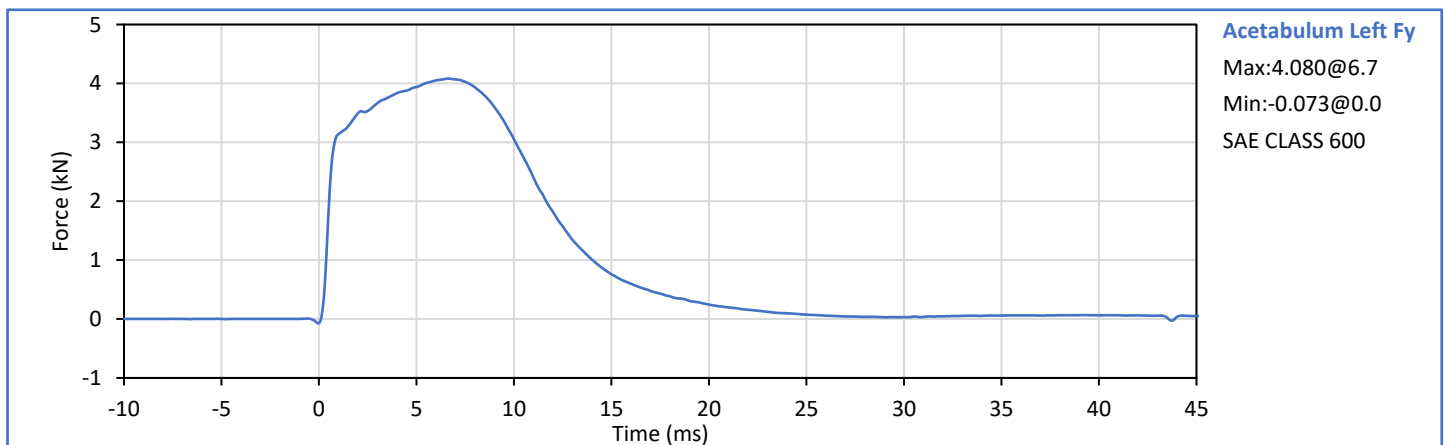
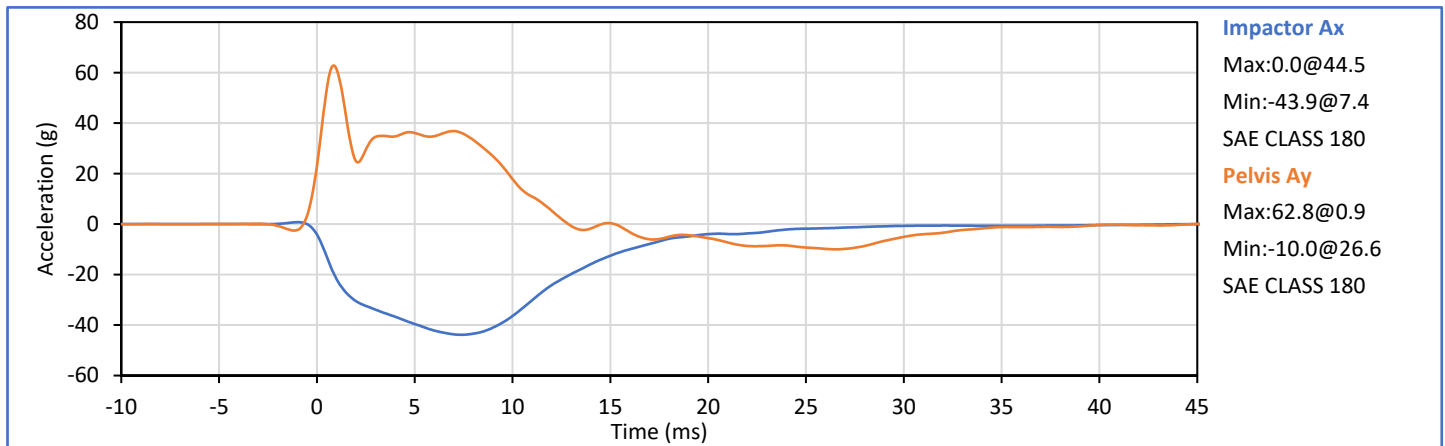
Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	29	Pass
Impactor Velocity	m/s	6.60	6.80	6.70	Pass
Peak Acetabulum Fy	kN	3.60	4.30	4.08	Pass
Pelvis Ay after 6ms	g	34.0	42.0	36.8	Pass
Peak Impactor Ax	g	-47.0	-38.0	-43.9	Pass
Overall Test Results					Pass

Pelvis Plug S/N: 13102



Technician: G. Holguin

Approved By: J. Hernandez

ATD Serial No.: 299

Test Date: 2022-04-19

Pelvis Plug S/N: 13102



SID-IIs Pelvis Plug Certification Test

Plug S/N 13102

Test Number 10422

Report Number 10457

Test Date 7/30/2019 4:55:43 PM

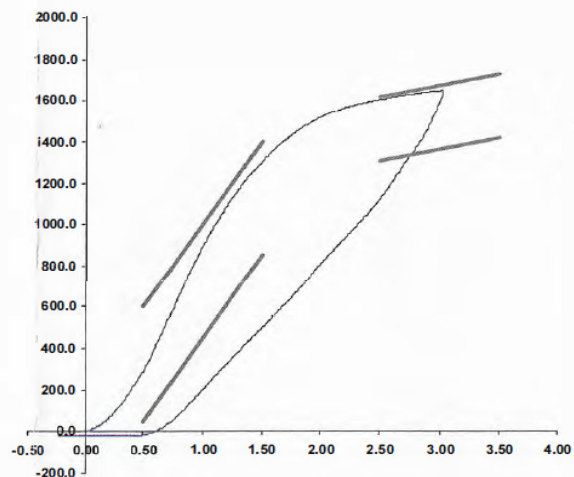
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	304.99	50.00	600.00
Force @ 1.5 mm (N)	1,307.42	850.00	1,400.00
Force @ 2.5 mm (N)	1,607.00	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,649.58	1,361.00	1,673.00

Testing Machine STM-20 5965542
Load Cell S/N (F1360947), Units (LBS) 1000

Crosshead Speed (mm / min) or Rate 12.7
Extension or Position Measured by XHD_100 (XHD100)

Notes:

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 30-Jul-19
SACO Research

By: BC Date: 7/30/2019

SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX

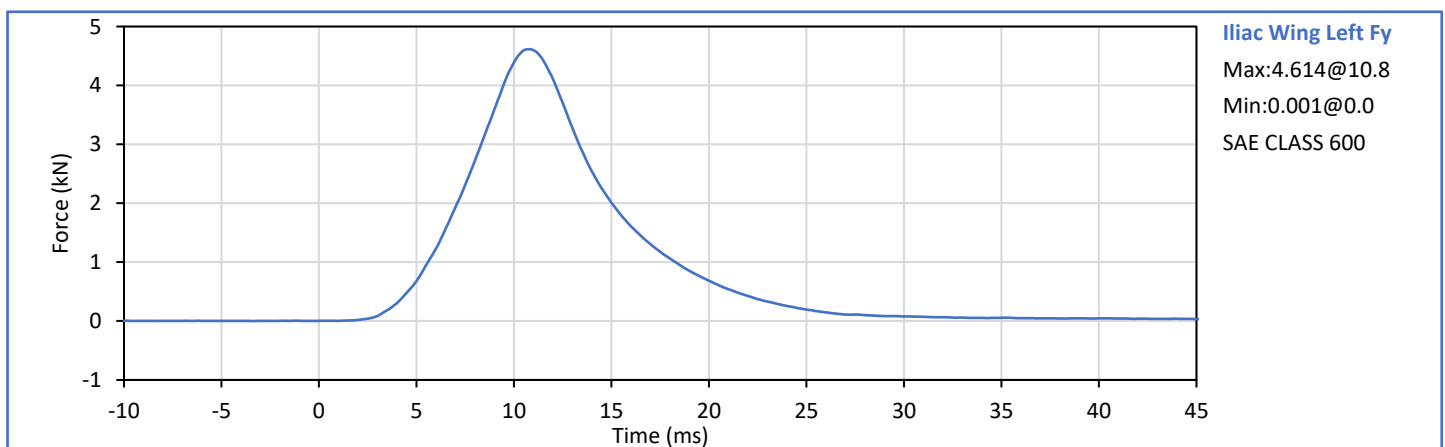
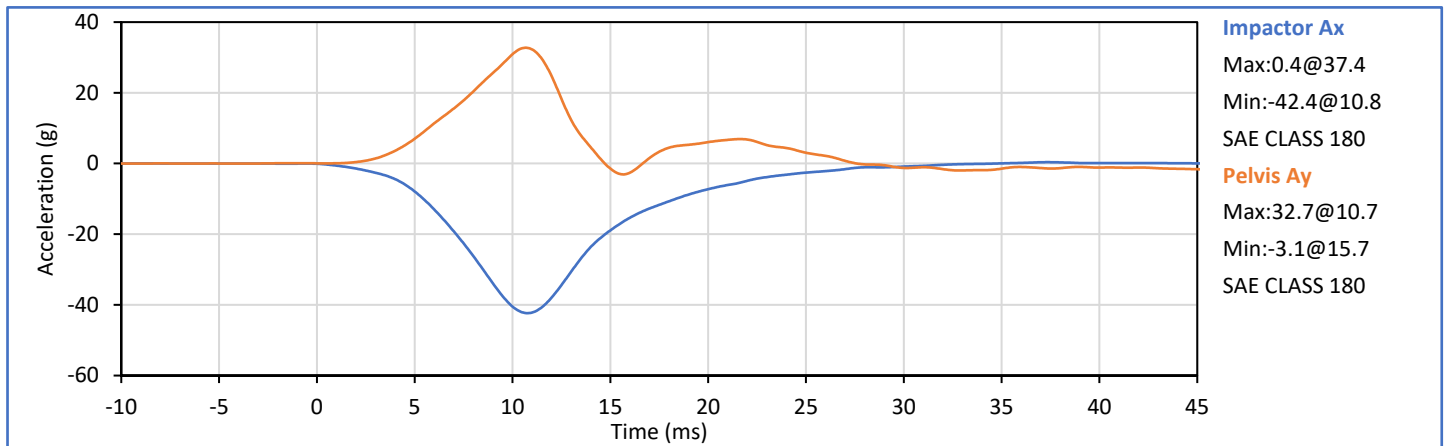
ATD Serial No.: 299

Test Date: 2022-04-19

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.9	Pass
Laboratory Relative Humidity	%	10	70	26	Pass
Impactor Velocity	m/s	4.20	4.40	4.33	Pass
Peak Iliac Fy	kN	4.10	5.10	4.61	Pass
Peak Pelvis Ay	g	28.0	39.0	34.7	Pass
Peak Impactor Ax	g	-45.0	-36.0	-42.4	Pass
Overall Test Results					Pass

Pelvis Plug S/N: 12228 *

* Plug is not impacted and remains certified



Technician:

G. Holguin

Approved By:

J. Hernandez

APPENDIX C
Post-Test ATD Qualification and Performance Verification
SID-IIs Small Side Impact ATD, Left Side Configuration
S/N: 299

ATD Serial No.: 299

Test Date: 2022-05-16

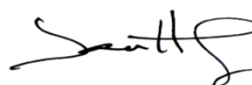
Tested Parameter	Units	Spec Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Relative Humidity	%	10	70	22	Pass
A - Sitting Height	mm	772	788	780	Pass
B - Shoulder Pivot Height	mm	437	453	450	Pass
C - Hpoint Height	mm	79	89	87	Pass
D - H Point From Seatback	mm	141	151	144	Pass
E - Shoulder Pivot From Backline	mm	97	107	100	Pass
F - Thigh Clearance	mm	119	135	126	Pass
G - Head Breadth	mm	140	148	145	Pass
H - Head Back From Backline	mm	40	46	43	Pass
I - Head Depth	mm	178	188	182	Pass
J - Head Circumference	mm	541	551	547	Pass
K - Buttock To Knee Length	mm	514	540	537	Pass
L - Popliteal Height	mm	343	369	351	Pass
K - Knee Pivot To Floor Height	mm	392	409	396	Pass
N - Buttock Popliteal Length	mm	416	442	424	Pass
O - Chest Depth W/O Jacket	mm	195	211	208	Pass
P - Foot Length	mm	216	232	226	Pass
Q - Hip Breadth (W/Pelvic Plugs)	mm	313	323	317	Pass
R - Arm Length	mm	249	259	257	Pass
S - Knee Joint To Seatback	mm	477	493	487	Pass
V - Shoulder Width	mm	341	357	348	Pass
W - Foot Width	mm	78	94	82	Pass
Y - Chest Circumference W/Jacket	mm	851	881	856	Pass
Z - Waist Circumference	mm	761	791	786	Pass
				Overall Test Results	Pass

Technician:



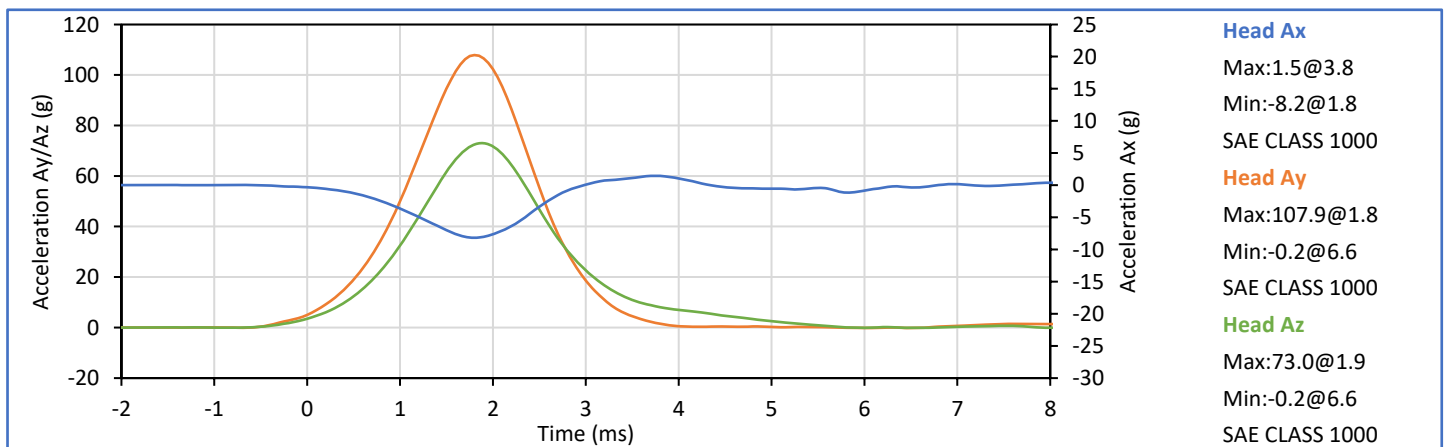
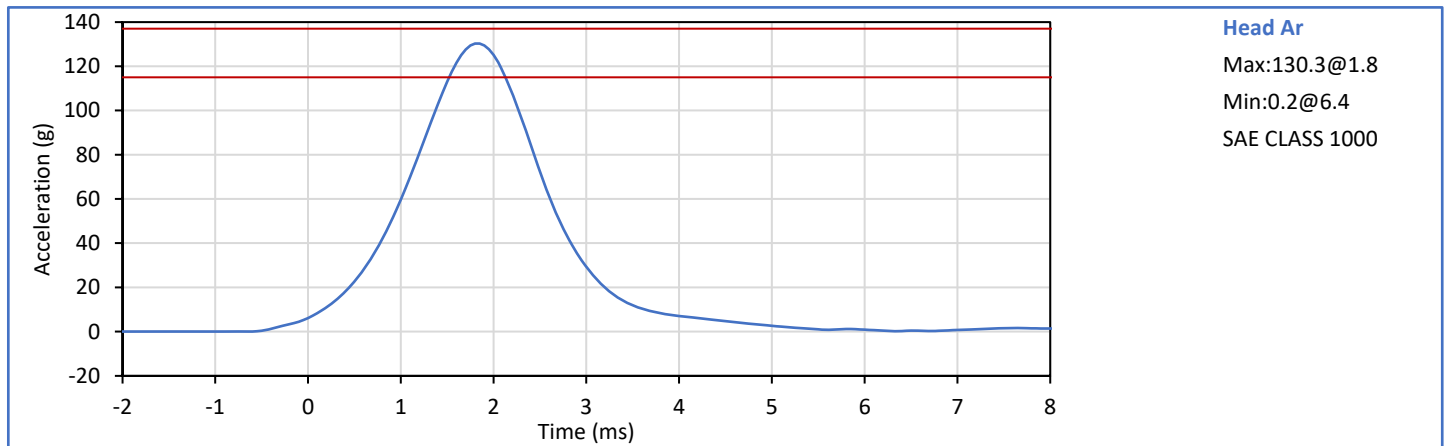
G. Holguin

Approved By:



J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.7	Pass
Laboratory Relative Humidity	%	10	70	32	Pass
Peak Resultant Acceleration	g	115.0	137.0	130.3	Pass
Peak Head Ax	g	-15.0	15.0	-8.2	Pass
Oscillations After Main Pulse	%	0.0	15.0	1.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results	Pass	



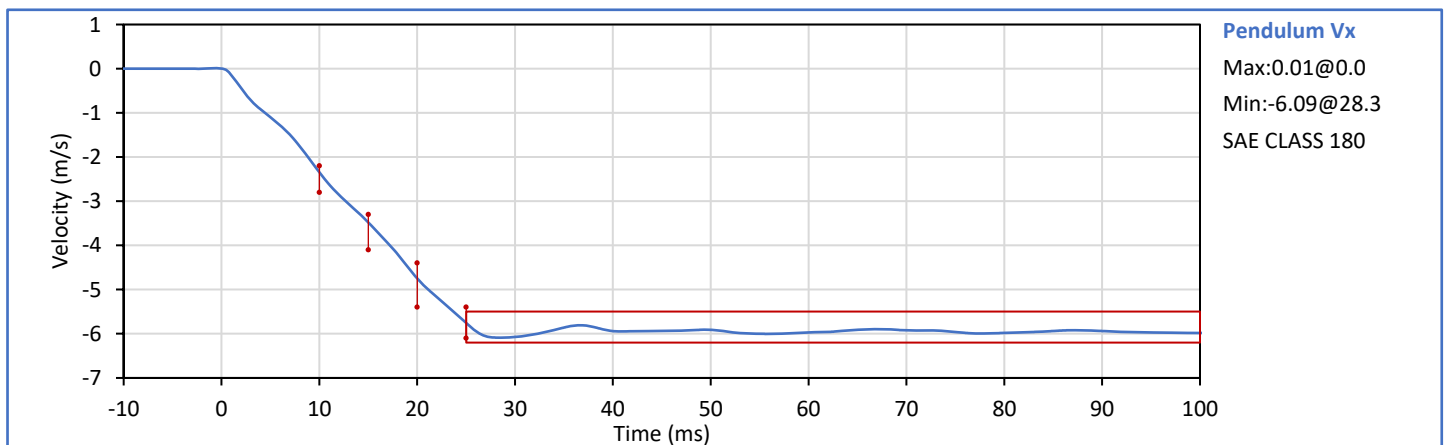
Technician:

G. Holguin

Approved By:

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.8	Pass
Laboratory Relative Humidity	%	10	70	34	Pass
Pendulum Velocity	m/s	5.51	5.63	5.55	Pass
Pendulum Decel at 10 ms	m/s	-2.80	-2.20	-2.35	Pass
Pendulum Decel at 15 ms	m/s	-4.10	-3.30	-3.48	Pass
Pendulum Decel at 20 ms	m/s	-5.40	-4.40	-4.75	Pass
Pendulum Decel at 25 ms	m/s	-6.10	-5.40	-5.76	Pass
Pendulum Decel from 25-100 ms	m/s	-6.20	-5.50	-6.09/-5.76	Pass
Peak "D" Plane Rotation	deg	-81.0	-71.0	-73.6	Pass
Time of Peak "D" Plane Rotation	ms	50.0	70.0	61.5	Pass
Peak Occ. Condyle Moment	Nm	36.0	44.0	42.8	Pass
Time of Moment Decay to 0 Nm	ms	102.0	126.0	112.8	Pass
				Overall Test Results	Pass

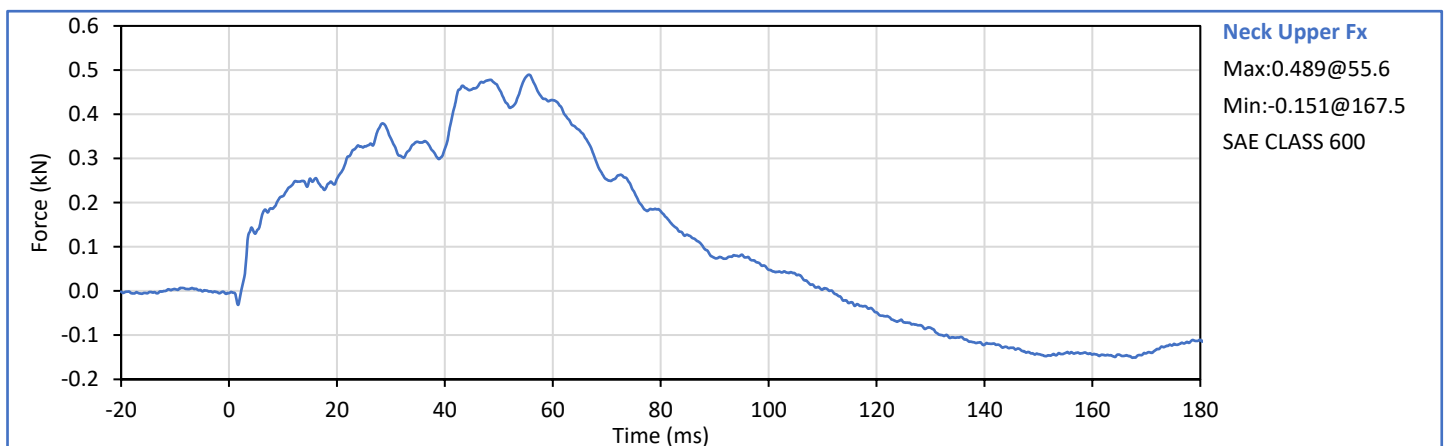
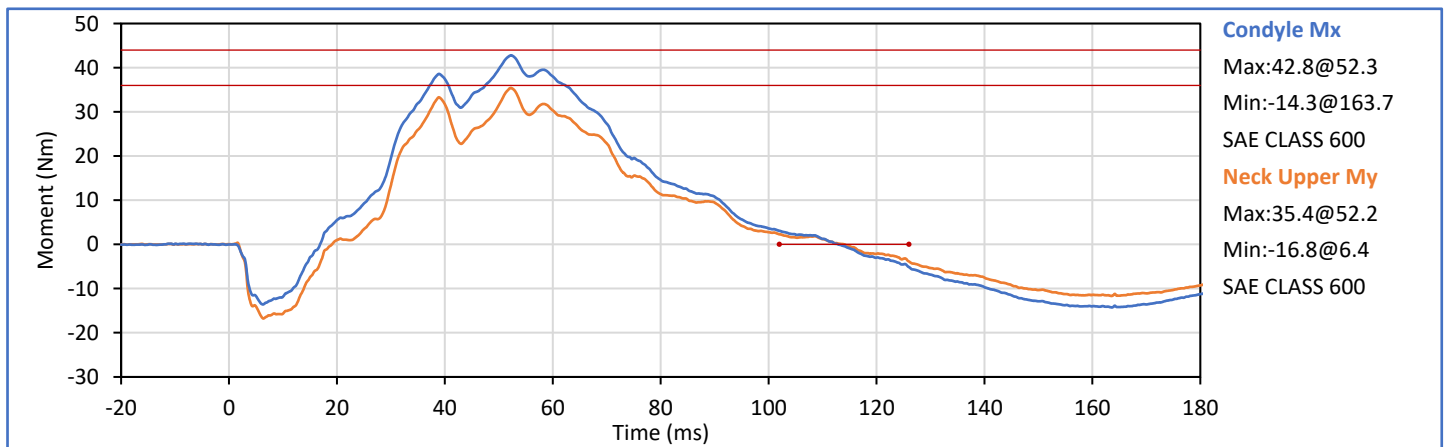
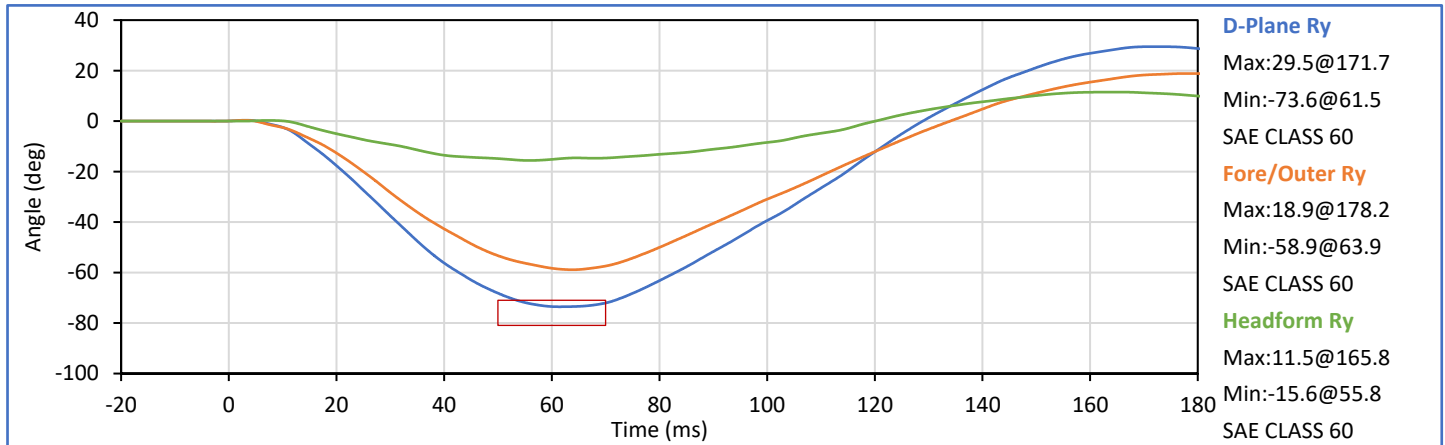


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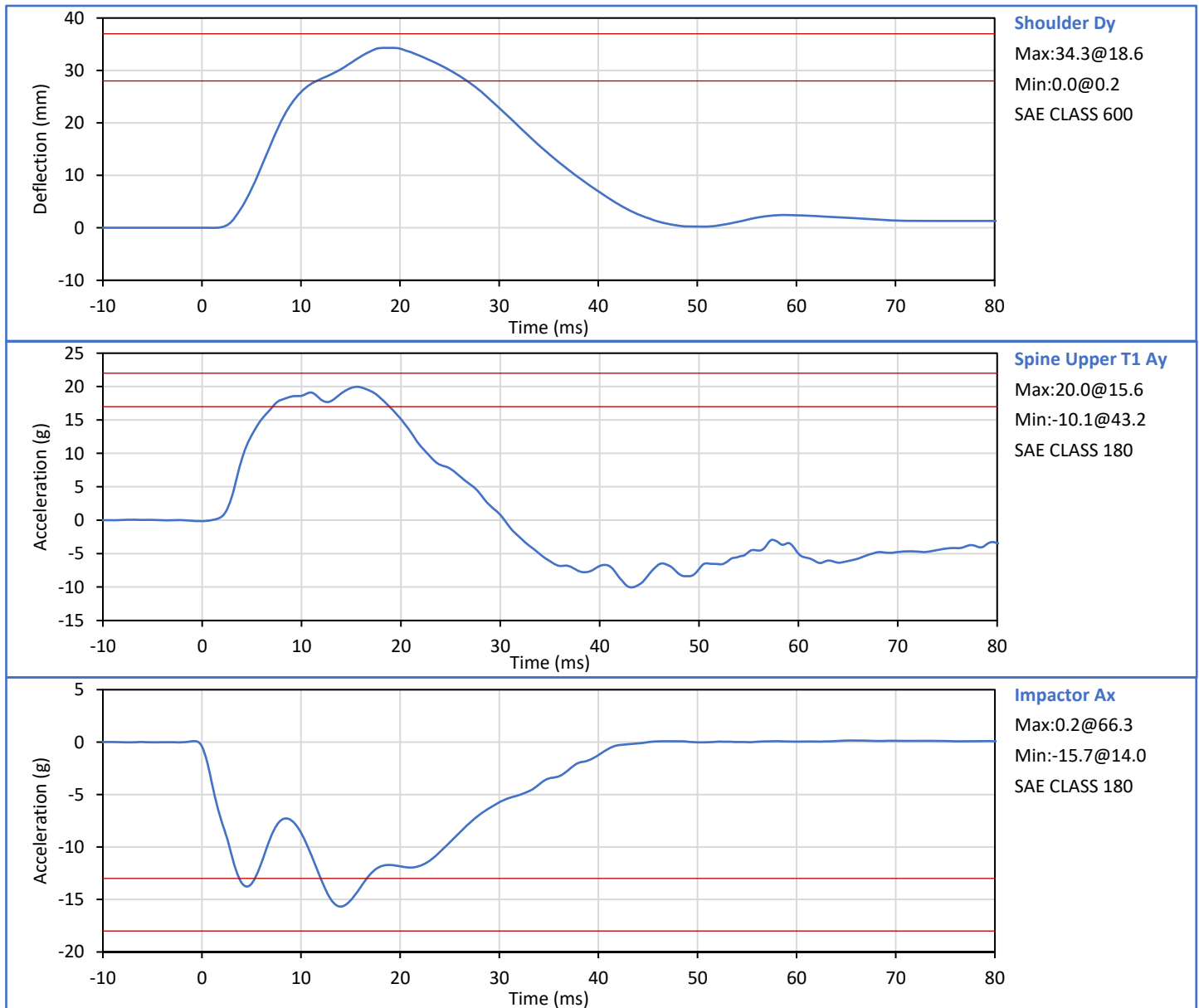
G. Holguin

Approved By:

J. Hernandez



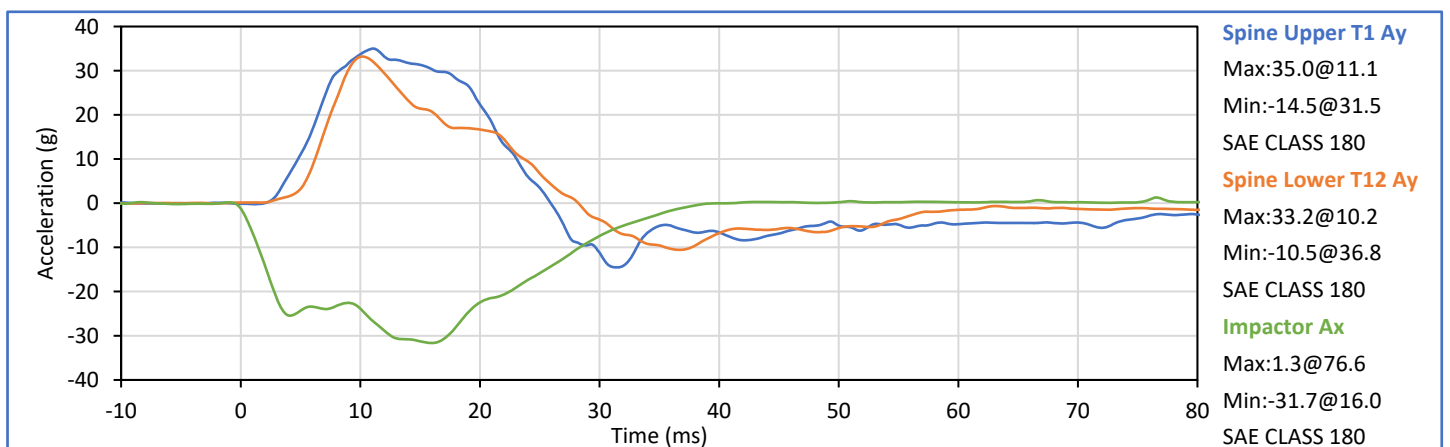
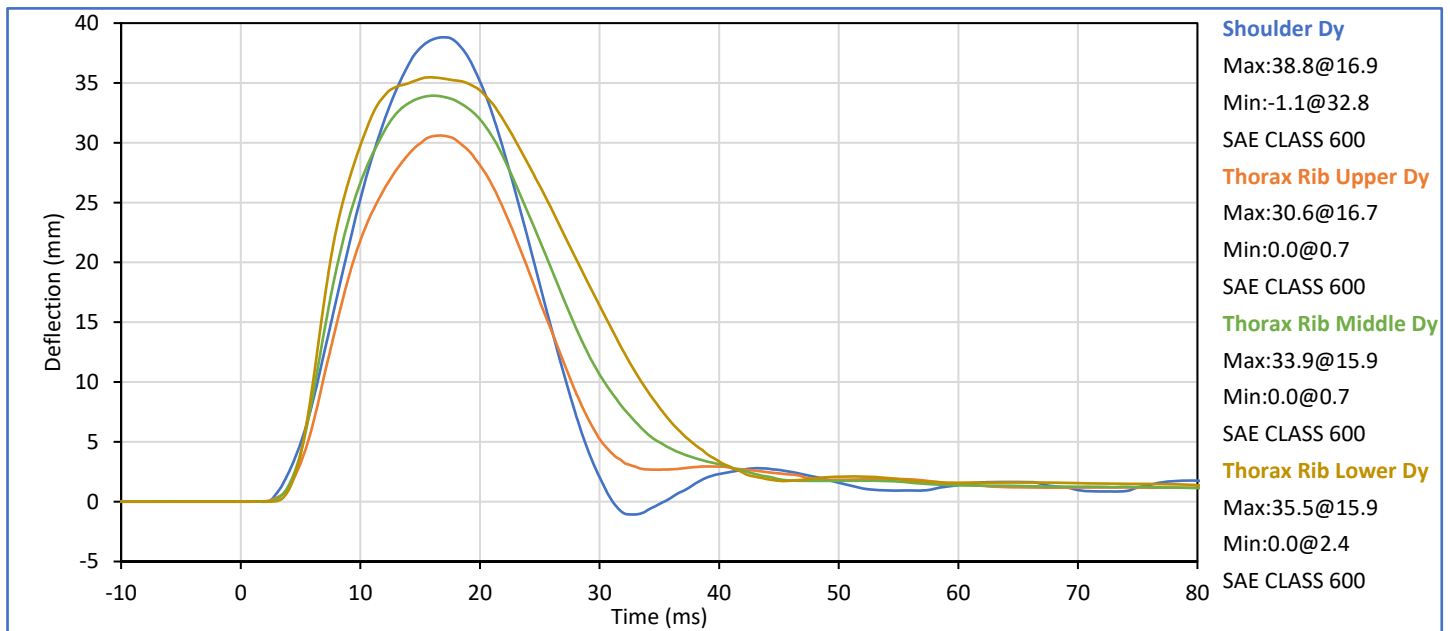
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.8	Pass
Laboratory Relative Humidity	%	10	70	31	Pass
Impactor Velocity	m/s	4.20	4.40	4.31	Pass
Peak Shoulder Dy	mm	28.0	37.0	34.3	Pass
Peak Upper Spine (T1) Ay	g	17.0	22.0	20.0	Pass
Peak Impactor Ax	g	-18.0	-13.0	-15.7	Pass
Overall Test Results					Pass



Technician: G. Holguin

Approved By: J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	22.0	Pass
Laboratory Relative Humidity	%	10	70	30	Pass
Impactor Velocity	m/s	6.60	6.80	6.71	Pass
Peak Shoulder Dy	mm	31.0	40.0	38.8	Pass
Peak Upper Rib Dy	mm	25.0	32.0	30.6	Pass
Peak Middle Rib Dy	mm	30.0	36.0	33.9	Pass
Peak Lower Rib Dy	mm	32.0	38.0	35.5	Pass
Peak Upper Spine (T1) Ay	g	34.0	43.0	35.0	Pass
Peak Lower Spine (T12) Ay	g	29.0	37.0	33.2	Pass
Peak Impactor Ax	g	-36.0	-30.0	-31.7	Pass
Overall Test Results				Pass	Pass



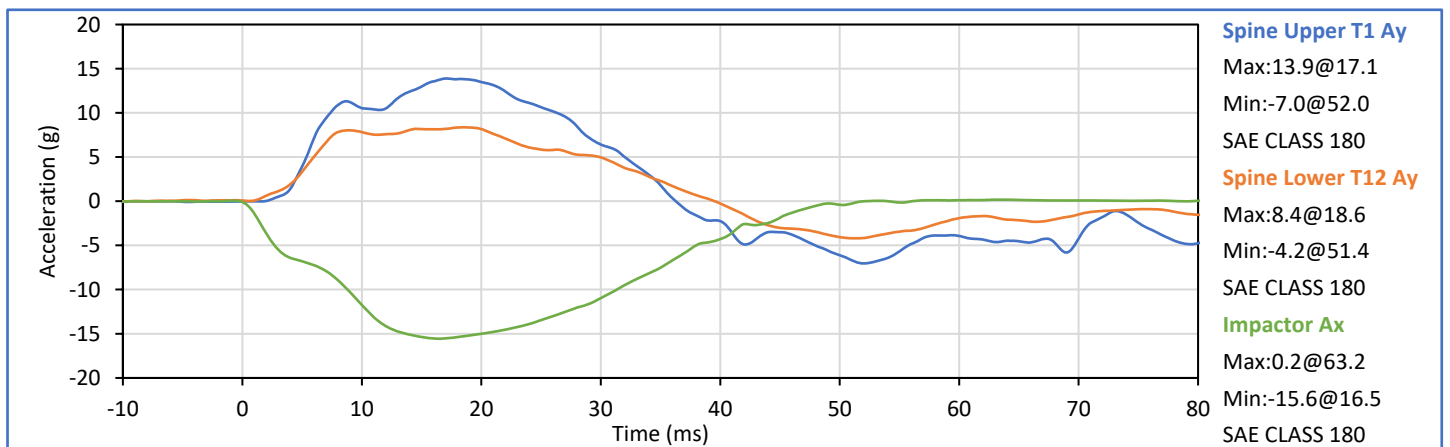
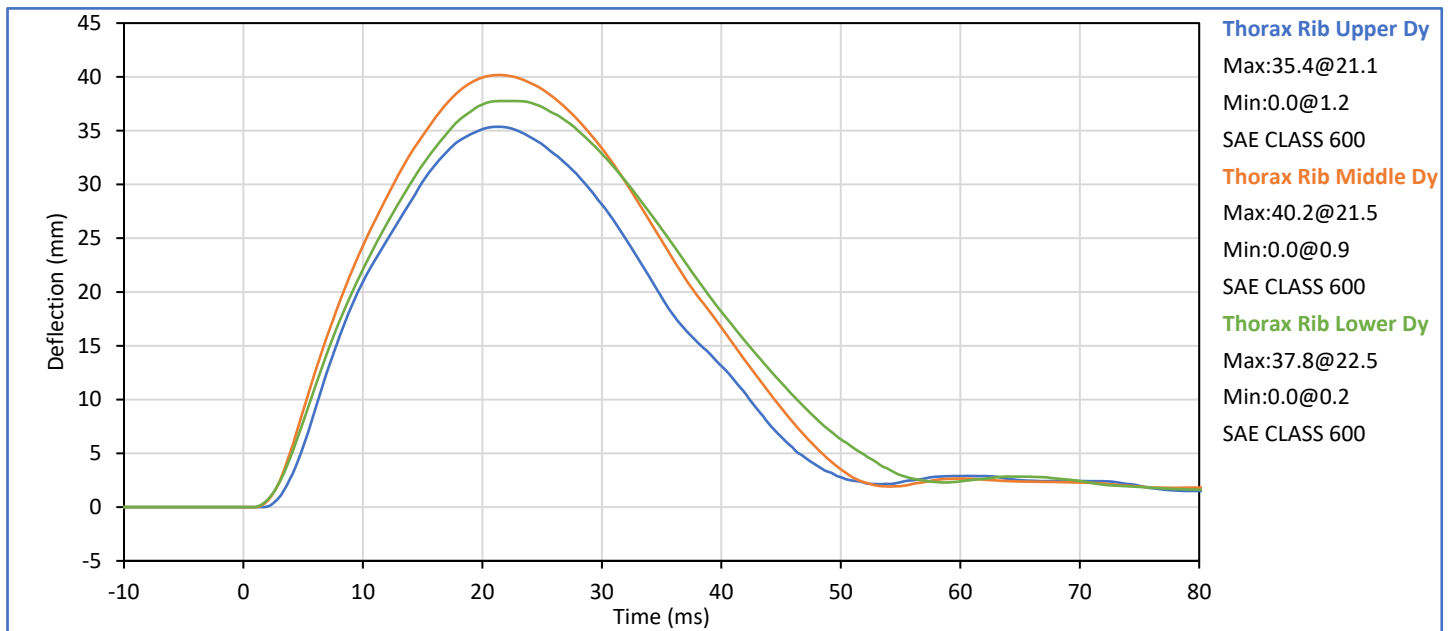
Technician:

G. Holguin

Approved By:

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	31	Pass
Impactor Velocity	m/s	4.20	4.40	4.30	Pass
Peak Thorax Rib Upper Dy	mm	32.0	40.0	35.4	Pass
Peak Thorax Rib Middle Dy	mm	39.0	45.0	40.2	Pass
Peak Thorax Rib Lower Dy	mm	35.0	43.0	37.8	Pass
Peak Spine Upper T1 Ay	g	13.0	17.0	13.9	Pass
Peak Spine Lower T12 Ay	g	7.0	11.0	8.4	Pass
Peak Impactor Ax	g	-18.0	-14.0	-15.6	Pass
Overall Test Results				Pass	Pass



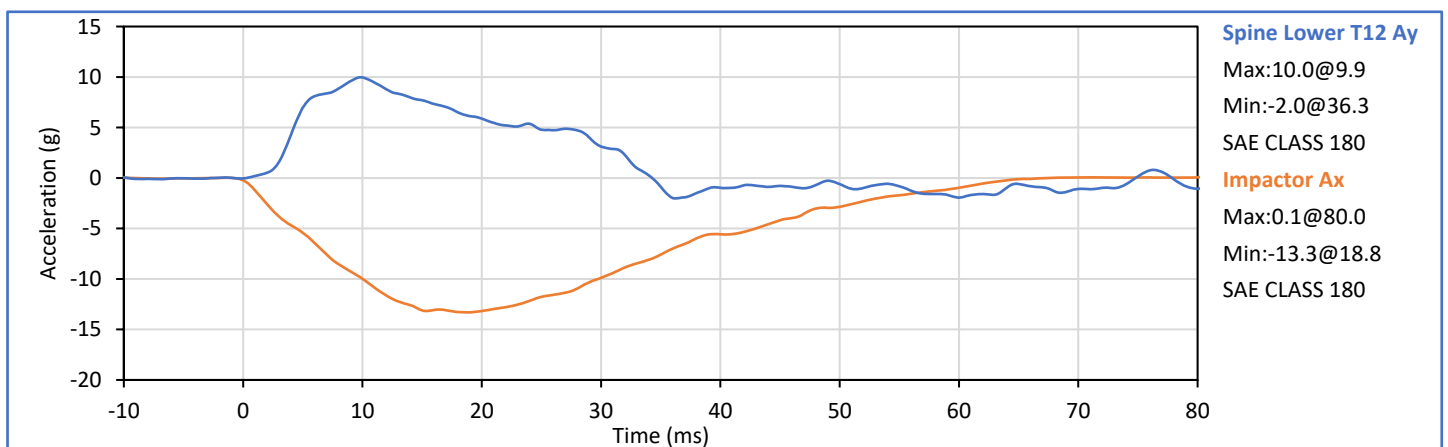
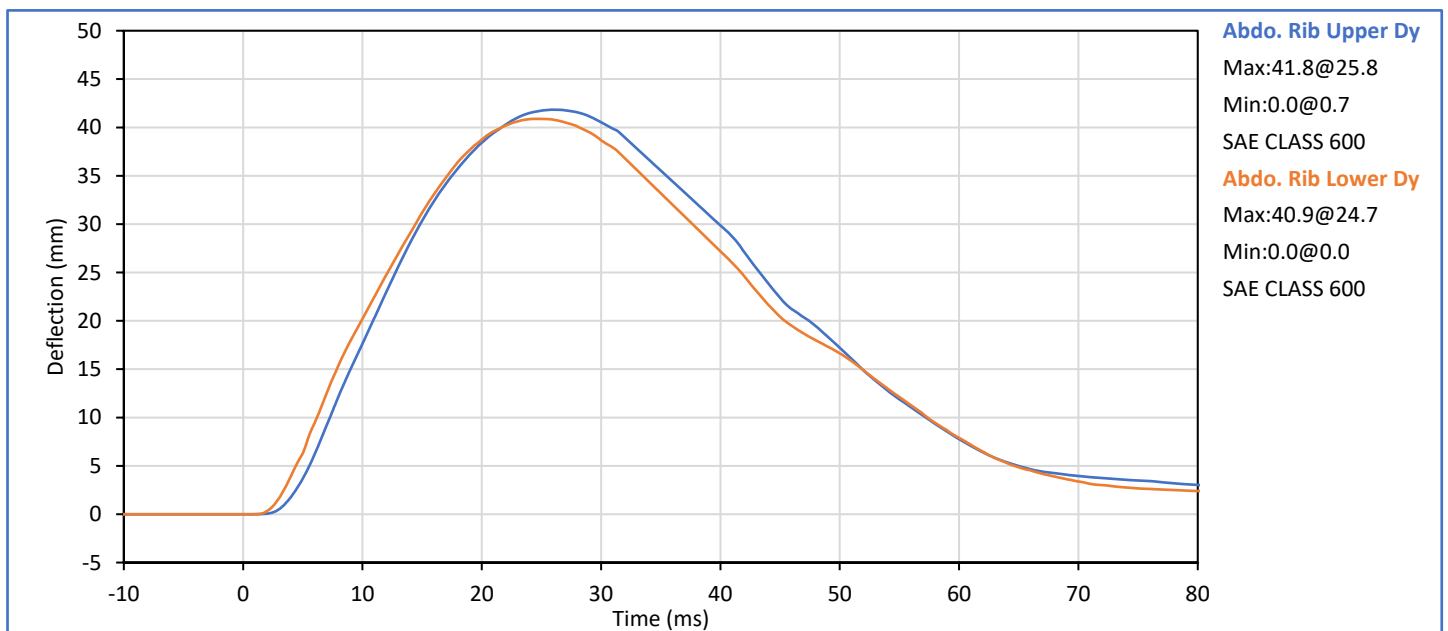
Technician:

G. Holguin

Approved By:

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	29	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Upper Abdomen Rib Dy	mm	36.0	47.0	41.8	Pass
Peak Lower Abdomen Rib Dy	mm	33.0	44.0	40.9	Pass
Peak Lower Spine T12 Ay	mm	9.0	14.0	10.0	Pass
Peak Impactor Ax	g	-16.0	-12.0	-13.3	Pass
Overall Test Results					Pass



Technician:

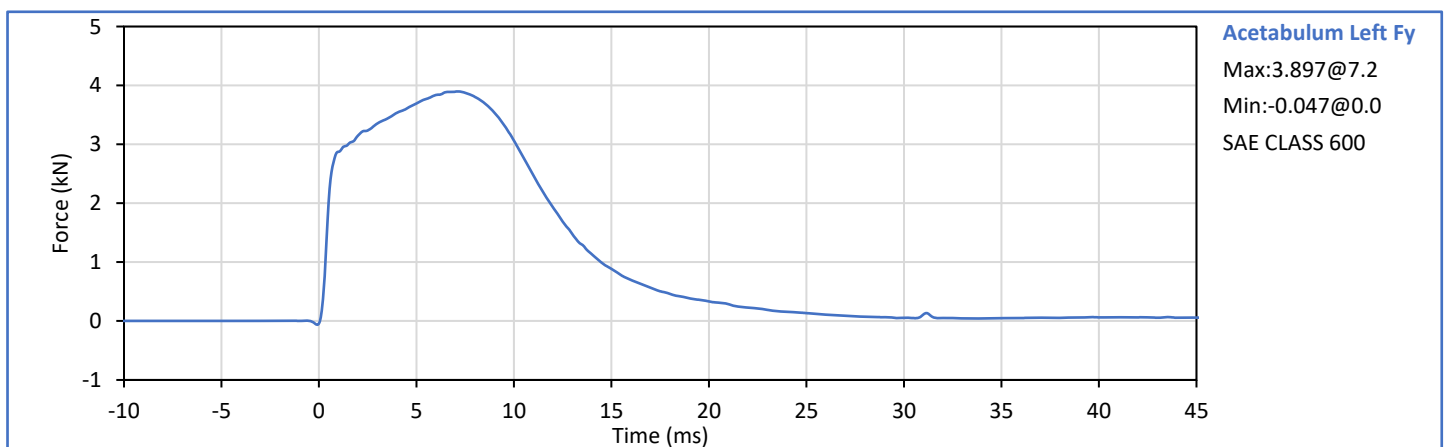
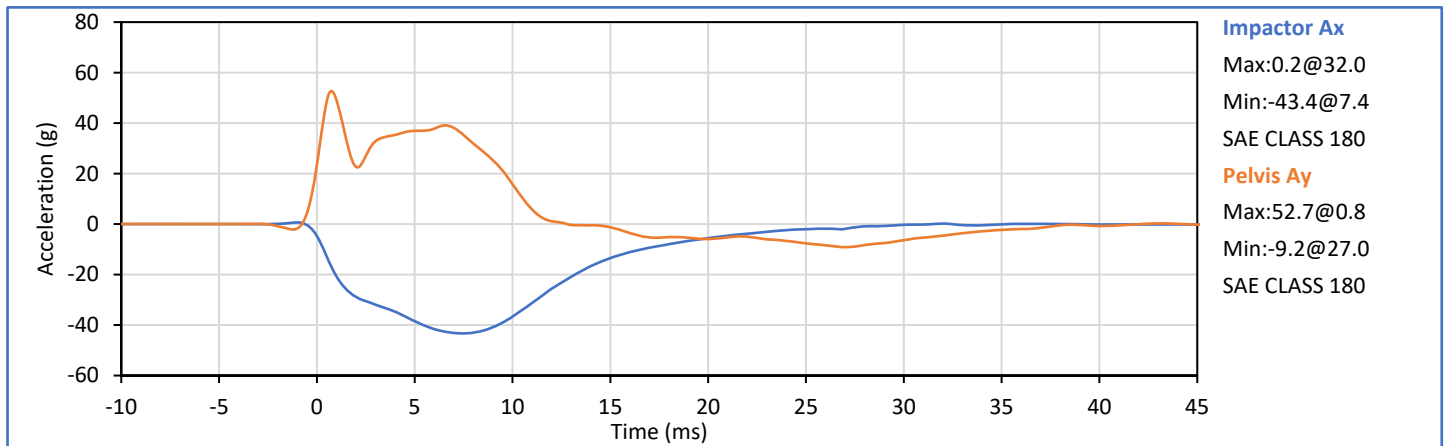
G. Holguin

Approved By:

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.9	Pass
Laboratory Relative Humidity	%	10	70	30	Pass
Impactor Velocity	m/s	6.60	6.80	6.66	Pass
Peak Acetabulum Fy	kN	3.60	4.30	3.90	Pass
Pelvis Ay after 6ms	g	34.0	42.0	39.1	Pass
Peak Impactor Ax	g	-47.0	-38.0	-43.4	Pass
Overall Test Results					Pass

Pelvis Plug S/N: 13693



Technician: G. Holguin

Approved By: J. Hernandez



SID-IIs Pelvis Plug Certification Test

Plug S/N 13693

Test Number 11341

Report Number 11379

Test Date 9/26/2019 1:48:26 PM

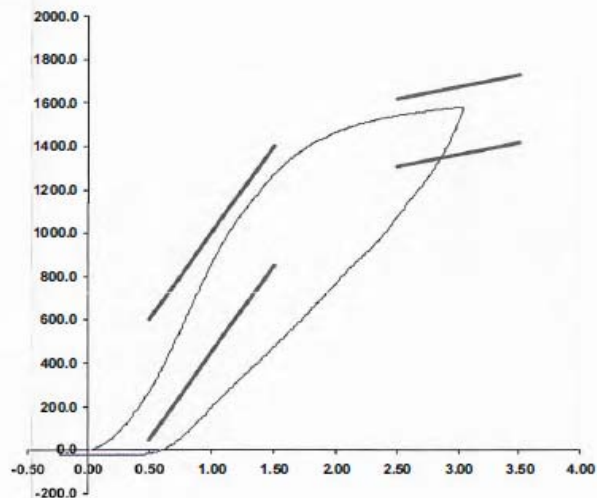
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	283.58	50.00	600.00
Force @ 1.5 mm (N)	1,274.82	850.00	1,400.00
Force @ 2.5 mm (N)	1,541.24	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,579.27	1,361.00	1,673.00

Testing Machine STM-20 5965542
Load Cell S/N (FI360947), Units (LBS) 1000

Crosshead Speed (mm/min) or Rate 12.7
Extension or Position Measured by XHD_100 (XHD100)

Notes:

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 26-Sep-19

SACO Research

By:

Date: 9/26/2019

SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX

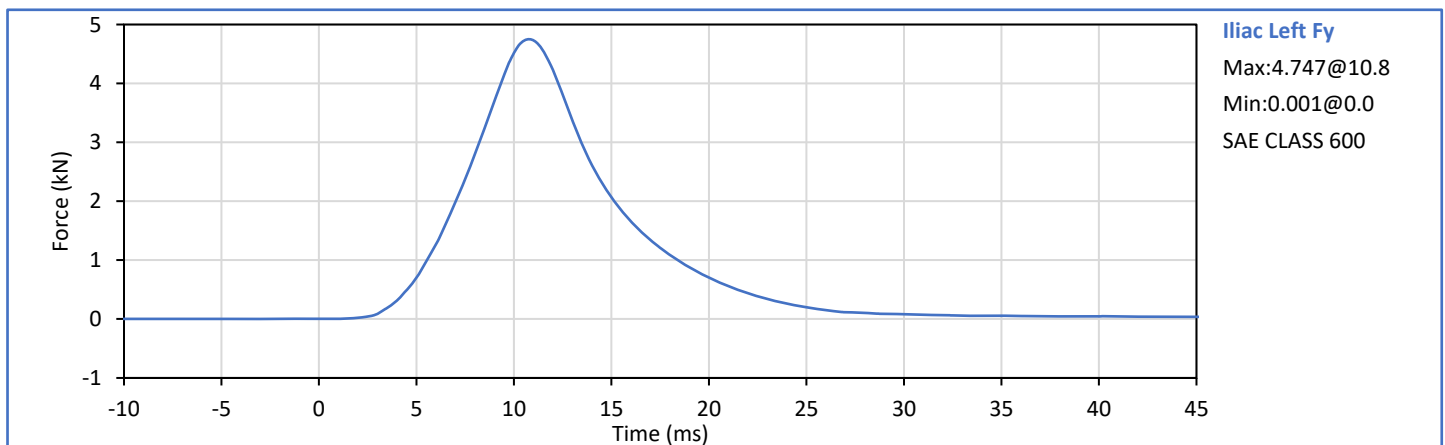
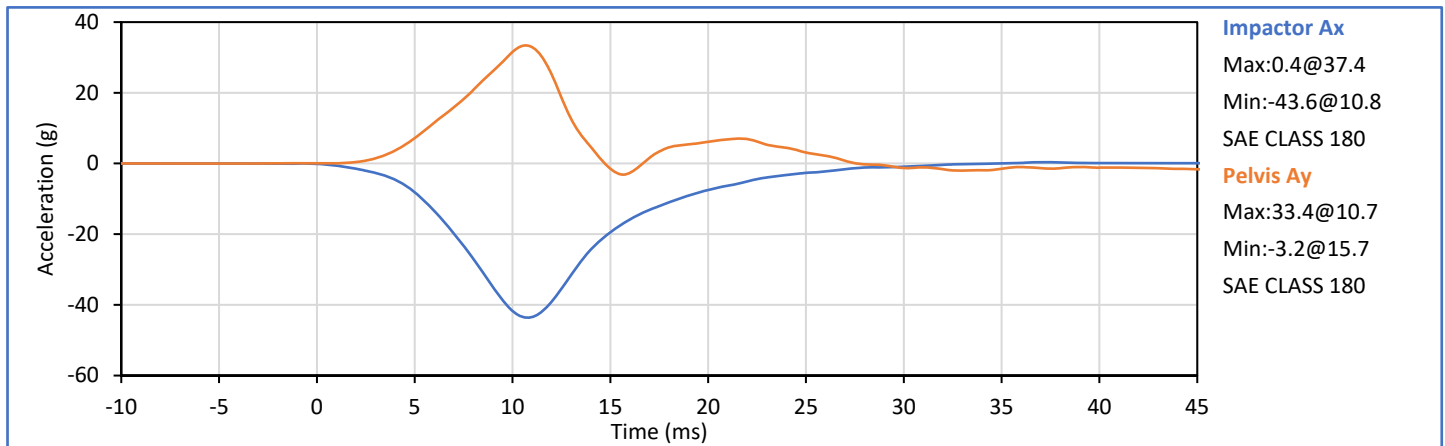
ATD Serial No.: 299

Test Date: 2022-05-16

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.8	Pass
Laboratory Relative Humidity	%	10	70	32	Pass
Impactor Velocity	m/s	4.20	4.40	4.33	Pass
Peak Iliac Fy	kN	4.10	5.10	4.75	Pass
Peak Pelvis Ay	g	28.0	39.0	34.7	Pass
Peak Impactor Ax	g	-45.0	-36.0	-43.6	Pass
Overall Test Results					Pass

Pelvis Plug S/N: 12228 *

* Plug is not impacted and remains certified



Technician: G. Holguin

Approved By: J. Hernandez

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 - Driver ATD Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Head Acceleration X Primary	P51929	Endevco	7264C-2k	2022-04-09
Head Acceleration Y Primary	P50086	Endevco	7264C-2k	2022-04-09
Head Acceleration Z Primary	P51931	Endevco	7264C-2k	2022-04-09
Head Acceleration X Redundant	P68604	Endevco	7264C-2k	2022-04-09
Head Acceleration Y Redundant	P51934	Endevco	7264C-2k	2022-04-09
Head Acceleration Z Redundant	P58736	Endevco	7264C-2k	2022-04-09
Head Rotation Rate X	ARS7342	DTS	ARS PRO-8k (2kHz)	2022-03-15
Head Rotation Rate Y	ARS7473	DTS	ARS PRO-8k (2kHz)	2022-03-15
Head Rotation Rate Z	ARS7548	DTS	ARS PRO-8k (2kHz)	2022-03-15
Upper Thorax Rib Deflection Y	1143	Servo	08TCI-3725	2022-04-08
Middle Thorax Rib Deflection Y	1075	Servo	08TCI-3725	2022-04-11
Lower Thorax Rib Deflection Y	1213	Servo	08TCI-3725	2022-04-08
Upper Abdomen Rib Deflection Y	1218	Servo	08TCI-3725	2022-04-08
Lower Abdomen Rib Deflection Y	1177	Servo	08TCI-3725	2022-04-08
Lower Spine T12 Acceleration X	P58761	Endevco	7264C-2k	2022-04-09
Lower Spine T12 Acceleration Y	P50077	Endevco	7264C-2k	2022-04-09
Lower Spine T12 Acceleration Z	P58795	Endevco	7264C-2k	2022-04-09
Iliac Wing Impact Side Force Y	284 (Iliac)	R.A. Denton	3228J	2022-03-30
Acetabulum Impact Side Force Y	272 (Acetabulum)	R.A. Denton	3249J	2022-03-30

Table 2 - Vehicle Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Vehicle CG Ax	A345143	MSI	52F-2k	2022-01-18
Vehicle CG Ay	A361322	MSI	52F-2k	2021-11-15
Vehicle CG Az	A358513	MSI	52F-2k	2021-11-15
Left Floor Sill Ay	A356294	MSI	52F-2k	2021-11-15
A-Pillar Sill Ay	A358494	MSI	52F-2k	2021-12-08
A-Pillar Low Ay	A356469	MSI	52F-2k	2022-01-14
A-Pillar Mid Ay	A354825	MSI	52F-2k	2021-11-11
B-Pillar Sill Ay	A358519	MSI	52F-2k	2021-11-15
B-Pillar Low Ay	A354823	MSI	52F-2k	2021-11-12
B-Pillar Mid Ay	A361339	MSI	52F-2k	2022-01-18
Driver Seat Track at H-Point Ay	A298382	MSI	52F-2k	2021-11-10
Engine Top Ax	A331794	MSI	52F-2k	2021-11-11
Engine Top Ay	A361491	MSI	52F-2k	2022-01-18
Firewall Ay	A298325	MSI	52F-2k	2021-11-12
Right Roof Ay	A356299	MSI	52F-2k	2022-01-18
Right Floor Sill Ay	A358725	MSI	52F-2k	2022-01-14
Rear Floorpan Ax	A343478	MSI	52F-2k	2021-11-12
Rear Floorpan Ay	A358472	MSI	52F-2k	2022-01-14

Table 3 - Barrier Pole Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Barrier Pole 01 Fx	131822A	Interface	1220AF-50k	2021-11-04
Barrier Pole 02 Fx	132304A	Interface	1220AF-50k	2021-11-04
Barrier Pole 03 Fx	19477	Interface	1220AF-50k	2021-11-04
Barrier Pole 04 Fx	19325	Interface	1220FS-50k	2021-11-04
Barrier Pole 05 Fx	131827A	Interface	1220AF-50k	2021-11-04
Barrier Pole 06 Fx	132302A	Interface	1220AF-50k	2021-11-05
Barrier Pole 07 Fx	19267	Interface	1220FS-50k	2021-11-05
Barrier Pole 08 Fx	19321	Interface	1220AF-50k	2021-11-05